Location for Flow Criterion	Ecosystem Function	Current Delta Flow Performance and/or Criteria	Delta Flow Criteria Recommendations, 2010				
		D-1641 (Table 3, pages 184, 186, 187; unless otherwise noted)	UC Davis Experts (All flows from Table 3, page 19)	California Department of Fish and Game (DFG, Exhibits 1, 2, 3, and 4; unless otherwise noted)	US Department of the Interior (US DOI, unless otherwise noted)	Bay Institute (Exhibits 2, 3, and 4)	C-WIN/CSPA (C-WIN, Exhibit 2, Table 4, pp. 30-34; CSPA Exhibit 6)
			DISCLAIMER: These Delta flow criteria recommendations are compared here for illustrative purposes only. For full descriptions, see the original narrative information submitted as testimony to the State Water Resources Control Board.				
Delta Outflows at Chipps Island	Estuarine Habitat Expansion, Invasive Species Suppression	From February through June, Net Delta Outflow is governed by X2 position modulated by number of days at a given position between Chipps Island and Port Chicago. X2 was equally likely to be under or over 80 km from the Golden Gate (near Collinsville, east of Chipps Island). X2 was likely to be east of 71 km location (west of Chipps Island) 80 percent of the time. (UC Davis Experts, Figure 8, p. 13) In July net Delta outflow could range from 4,000 to 8,000 cfs by water year type; in August 3,000 to 4,000 cfs; in September 3,000 cfs in all years; in October 4,000 cfs in all years, except 3,000 in critical years; and in November through January, 4,500 cfs in all years except critical years in November and December.	Net Delta outflows should be 48,000 cfs from April through June in 5 of every 10 years; *Egeria* suppression flows of 8,000 cfs from August through September for 3 driest of every 10 years; and *Corbula* clam suppression flows of 120,000 cfs from February through April in 3 of every 10 years.	In three 1992 alternative scenarios, DFG presented April through July mean Delta outflows ranging from 4,500 cfs to 6,700 cfs in critical years, to 29,000 cfs to 43,000 cfs in wet years. DFG presented August through December outflows ranging from 3,700 cfs in critical years to 14,300 cfs in wet years. They also presented February Delta outflows ranging from 8,000 cfs in critical years to 93,500 cfs in wet years; and for March Delta outflows ranging from 7,200 cfs in critical years to 74,300 cfs in wet years. (WRINT-DFG Exhibit 8, 1992)	Historical flows between 1969 to 1985 should be more relevant for establishing fish flows since this was a time when fish abundance cohabited with some export activity. (USDOI, p. 48)	Outflows in January through June period should exceed 6.3 MAF in at least 8 of 10 years; exceed 13.5 MAF in half of years; and exceed 20 MAF in at least one-third of years. Outflows of less than 3.2 MAF should occur in no more than 1 of every 20 years (TBI, Exhibit 2, p. 25); fall Delta outflows (September through November) should be no less than 5,750 cfs in all years; no less than 7,500 cfs in dry years; no less than 9,700 cfs in below normal years; no less than 12,400 cfs in above normal years; and no less than 16,100 cfs in wet years to protect abundance and spatial extent of public trust resources. (TBI, Exhibit 2, p. 35)	Delta outflows from February 1 through March 31 would range from averages of 9,100 cfs (critical) to 91,800 cfs (wet); April 1 through July 31 would range from averages of 6,700 cfs (critical) to 43,000 cfs (wet); and from August 1 through January 31 would range from averages of 4,100 cfs (critical) to 29,000 cfs (wet).
X2 and/or San Joaquin River at Jersey Point	Estuarine Salinity Regulation and Habitat Expansion and Variability	X2 was equally likely to be under or over 80 km from the Golden Gate (near Collinsville, east of Chipps Island). X2 was likely to be east of 71 km location (west of Chipps Island) 80 percent of the time. (UC Davis Experts, Figure 8, p. 13)	None offered; however, historically under unimpaired flows, X2 was "equally likely to be upstream or downstream of the 71 km location [west of Chipps Island in Suisun Bay]" (Figure 8, p. 13).	DFG recommended in its Exhibit 2 a composite estuarine indicator that incorporates X2, unimpaired runoff, sediment, mysid shrimp density which indicates a downward trend since the mid-1960s after which State Water Project exports began. (DFG Exhibit 2, pages 1-4 (including Table 1) 6, 13).	Move X2 westward in fall to increase quality and quantity of suitable Delta smelt habitat, reduce risk of pump entrainment. (USDOI, p. 46)	Average monthly X2 values for September through November should be less than 83 km from Golden Gate in all years; < 80 km in dry years; < 77 km in below normal years; < 74 km in above normal years; and < 71 km in wet years. (TBI, Exhibit 2, Table 1, p. 35)	Average 14-day running average position of X2 measured 1 meter from channel bottom, expressed in kilometers from the Golden Gate: Feb 1 through March 31: 51 km (wet) to 79 (critical); April 1 through July 31: 54 km (wet) to 83 (critical); August 1 through January 31: 50 km (wet) to 90 km (critical). (C-WIN, Exhibit 2, Table 4, p. 33)

Location for Flow Criterion	Ecosystem Function	Current Delta Flow Performance and/or Criteria	Delta Flow Criteria Recommendations, 2010				
		D-1641 (Table 3, pages 184, 186, 187; unless otherwise noted)	UC Davis Experts (All flows from Table 3, page 19)	California Department of Fish and Game (DFG, Exhibits 1, 2, 3, and 4; unless otherwise noted)	US Department of the Interior (US DOI, unless otherwise noted)	Bay Institute (Exhibits 2, 3, and 4)	C-WIN/CSPA (C-WIN, Exhibit 2, Table 4, pp. 30-34; CSPA Exhibit 6)
			DISCLAIMER: These Delta flow criteria recommendations are compared here for illustrative purposes only. For full descriptions, see the original narrative information submitted as testimony to the State Water Resources Control Board.				
Sacramento Valley Outflows	Base Flows	Base flows at Rio Vista established only for Sept through Dec all years, ranging from 3,000 cfs in critical years to 4,500 cfs in non-critical years.	10,000 cfs in all months in all years				6,000 cfs February 1 through October 30 in all years measured at Rio Vista.
	Pulse Flows for adult salmon		10,000 cfs from October through June, 6 of 10 years				
	Pulse flows for juvenile salmon and smolt migration		25,000 cfs from March through June, 6 of 10 years	Maximum survival of salmon smolts was observed at or above 20,000 to 30,000 cfs. Flows are important for Chinook salmon smolts from November through June, with the greatest need for flows occuring in May.	Provide flows that mimic natural hydrograph. Smolt survival is maximized between 20,000 and 30,000 cfs flow at Rio Vista in spring months. (USDOI, p. 57)		30,000 cfs April 1 through June 30 in all years, from Freeport to Chipps Island.
	Pulse flows for adult sturgeon migration		70,000 cfs from January through May, 1 year in 10	Increased early spring Delta and river flows would likely increase attraction and successful migration of adult green sturgeon and white sturgeon, both of which are presumed to spawn in the mainstem Sacramento River.			
	Suppression Flows for *Corbula amurensis*		120,000 cfs from February through April, 3 years of 10				

Location for Flow Criterion	Ecosystem Function		Current Delta Flow Performance and/or Criteria	Delta Flow Criteria Recommendations, 2010				
			D-1641 (Table 3, pages 184, 186, 187; unless otherwise noted)	UC Davis Experts (All flows from Table 3, page 19)	California Department of Fish and Game (DFG, Exhibits 1, 2, 3, and 4; unless otherwise noted)	US Department of the Interior (US DOI, unless otherwise noted)	Bay Institute (Exhibits 2, 3, and 4)	C-WIN/CSPA (C-WIN, Exhibit 2, Table 4, pp. 30-34; CSPA Exhibit 6)
				DISCLAIMER: These Delta flow criteria recommendations are compared here for illustrative purposes only. For full descriptions, see the original narrative information submitted as testimony to the State Water Resources Control Board.				
Old River from Head of Old River to Downstream Confluence with San Joaquin River	Maintain salmonid outmigration corridor							2,000 cfs from March 15 through May 15.
Old and Middle River	Flow Direction, Entrainment Prevention and Provision of Migration Corridors		Historically, under unimpaired flows, net OMR flows > 0 cfs occurred only about 8 percent of the time. (UC Davis Experts, Figure 9, p. 15, point B)	None offered; however, historically under unimpaired flows, net OMR flows > 0 about 84 percent of the time.	DFG reports that "increased flow into the south Delta increases survival by reducing the effects of these various mortality factors"; that is, of Port of Stockton ship traffic (DWSC) and entrainment at the export pumps. DFG Exhibit 3, p. 14.	Inverse relation between OMR flows and Delta smelt and other fish salvage at pumps. State Water Board should develop criteria for OMR positive net flows (flows > 0 cfs) in January through June to protect public trust resources. (USDOI, p. 53)	Base net OMR flows of > -2,000 cfs from October through June; adjusted as follows: in December through February in all year types, net OMR flows should be > -1,500 cfs, and > -1,500 cfs in critical years in March as well; positive net OMR flows > 0 cfs from March through May in all years except for March in critical years; and > -1,500 cfs in June of all years. (TBI, Exhibit 4, Table 1, p. 30)	Base positive net OMR flow of 2,000 cfs March 15, through May 15 in all years. Pulse flows derived from San Joaquin Valley outflows (see below).
San Joaquin Valley Outflows	All Years	Pulse Flows to Attract Adult Spawning Salmonids		2,000 cfs in all months of all years.		1,000 cfs pulse flow for 10 days in mid-October needed to maintain high levels of gamete viability in migrating salmon and to minimize straying to the Sacramento River watershed during periods of high exports (i.e., exports no more than 300% of Vernalis flow). USFWS, 2005, p. 12.	July through February in all years, 2,000 cfs (TBI, Exhibit 3, p. 28)	5,400 cfs on the San Joaquin River at Vernalis, with each major tributary contributing 1,200 cfs at their confluences with the San Joaquin River from October 20 to October 29.

Location for Flow Criterion	Ecosystem Function		Current Delta Flow Performance and/or Criteria		Delta Flow Criteria Recommendations, 2010				
			D-1641 (Table 3, pages 184, 186, 187; unless otherwise noted)		UC Davis Experts (All flows from Table 3, page 19)	California Department of Fish and Game (DFG, Exhibits 1, 2, 3, and 4; unless otherwise noted)	US Department of the Interior (US DOI, unless otherwise noted)	Bay Institute (Exhibits 2, 3, and 4)	C-WIN/CSPA (C-WIN, Exhibit 2, Table 4, pp. 30-34; CSPA Exhibit 6)
			DISCLAIMER: These Delta flow criteria recommendations are compared here for illustrative purposes only. For full descriptions, see the original narrative information submitted as testimony to the State Water Resources Control Board.						
San Joaquin Valley Outflows	Wet Years	Pulse Flows for Temp Control, Habitat Inundation and Migration	**Non-VAMP Flow Dates -** Feb 1 - April 14; May 16 - June 30 (Higher flow to move X2 west of Chipps Island) **2,130 or 3,420 cfs**	**VAMP Flow Dates** - April 15 through May 15 (Higher flow to move X2 west of Chipps Island) **7,330 or 8,620 cfs**	20,000 cfs from April through June, 2 years of every 10	15,000 cfs for 70 days in VAMP-like spring period. Pulse flows based on DFG's San Joaquin River modeling program. DFG's model projects a 191 percent increase in Chipps Island smolt abundance, and a 104 percent increase in projected escapement later.	Flows to implement anadromous fish doubling goals, combined late winter and spring average monthly flows for San Joaquin River tributaries, plus other accretions and inflows, measured in cfs at Vernalis.*	Late March, 5,000 cfs; April through mid-May, 20,000 cfs; Late May through mid-June, 7,000 cfs; late June 2,000 cfs. Flow regime recommended for 20 percent of all years (TBI, Exhibit 3, p. 28)	Combined flow releases for Stanislaus, Tuolumne, Merced and San Joaquin Rivers, plus other accretions and inflows, measured in cfs at Vernalis.** **Feb 15 to March 15 flows for rearing habitat in floodplains would call for 13,400 cfs for 17 days and 26,800 cfs for 5 days.**
							Month: Flow (cfs) February: 6,600 March: 13,200 April: 15,600 May: 25,900 USFWS, 2005, p. 10.		March 15 - 31: 13,400 April 1-15: 13,400 April 16-20: 13,400 April 21-30: 13,400 May 1-15: 13,400 May 16-June 15: 14,900
San Joaquin Valley Outflows	Above Norm Years	Pulse Flows for Temp Control, Habitat Inundation and Migration	Non-VAMP Flow Dates: 2,130 or 3,420 cfs	VAMP Flow Dates: 5,730 or 7,020 cfs	15,000 cfs from April through mid-June, 4 years of every 10	10,000 cfs for 60 days in VAMP-like spring period. Pulse flows based on DFG's San Joaquin River modeling program. DFG's model projects a 102 percent increase in Chipps Island smolt abundance, and a 58 percent increase in projected escapement later.	Average monthly fish doubling flows for combined San Joaquin Valley rivers, other inflows and accretions.*	Late March, 5,000 cfs; April, 20,000 cfs; May, 7,000 cfs; June, 2,000 cfs. Flow regime recommended for 40 percent of all years (TBI, Exhibit 3, p. 28)	Date: Combined San Joaquin Valley Flows
							Month: Flow (cfs) February: 3,800 March: 7,700 April: 12,200 May: 20,500 USFWS, 2005, p. 10.		February 15 - March 15: 13,400 for 13 days; 26,800 for 5 days March 15 - 31: 4,500 April 1-15: 6,700 April 16-20: 8,900 April 21-30: 8,900 May 1-15: 11,200 May 16-June 15: 1,200

<table>
<tr><th rowspan="3">Location for Flow Criterion</th><th colspan="2" rowspan="3">Ecosystem Function</th><th colspan="2">Current Delta Flow Performance and/or Criteria</th><th colspan="6">Delta Flow Criteria Recommendations, 2010</th></tr>
<tr><th colspan="2">D-1641 (Table 3, pages 184, 186, 187; unless otherwise noted)</th><th>UC Davis Experts (All flows from Table 3, page 19)</th><th>California Department of Fish and Game (DFG, Exhibits 1, 2, 3, and 4; unless otherwise noted)</th><th colspan="2">US Department of the Interior (US DOI, unless otherwise noted)</th><th>Bay Institute (Exhibits 2, 3, and 4)</th><th colspan="2">C-WIN/CSPA (C-WIN, Exhibit 2, Table 4, pp. 30-34; CSPA Exhibit 6)</th></tr>
<tr><th colspan="10">DISCLAIMER: These Delta flow criteria recommendations are compared here for illustrative purposes only. For full descriptions, see the original narrative information submitted as testimony to the State Water Resources Control Board.</th></tr>
<tr><td rowspan="11">San Joaquin Valley Outflows</td><td rowspan="11">Below Norm Years</td><td rowspan="11">Pulse Flows for Temp Control, Habitat Inundation and Migration</td><td>Non-VAMP Flow Dates</td><td>VAMP Flow Dates</td><td rowspan="11">10,000 cfs from April through May in 6 years of every 10</td><td rowspan="11">8,500 cfs for 50 days in VAMP-like spring period. Pulse flows based on DFG's San Joaquin River modeling program. DFG's model projects a 106 percent increase in Chipps Island smolt abundance, and a 60 percent increase in projected escapement later.</td><td colspan="2">Average monthly fish doubling flows for combined San Joaquin Valley rivers, other inflows and accretions. (USFWS, 2005, p. 10.)</td><td rowspan="11">March, 2,000 cfs; early April 20,000 cfs; late April, 10,000 cfs; early May 7,000 cfs; late May 5,000 cfs; June 2,000 cfs. Flow regime recommended for 60 percent of all years (TBI, Exhibit 3, p. 28)</td><td>Date</td><td>Combined San Joaquin Valley Flows</td></tr>
<tr><td>1,420 or 2,280 cfs</td><td>4,620 or 5,480 cfs</td><td>Month</td><td>Flow (cfs)</td><td>February 15 - March 15</td><td>13,400 for 16 days; 26,800 for 2 days</td></tr>
<tr><td colspan="2" rowspan="9"></td><td>February</td><td>2,700</td><td>March 15 - 31</td><td>4,500</td></tr>
<tr><td>March</td><td>5,200</td><td>April 1-15</td><td>6,700</td></tr>
<tr><td>April</td><td>10,000</td><td>April 16-20</td><td>8,900</td></tr>
<tr><td>May</td><td>14,800</td><td>April 21-30</td><td>8,900</td></tr>
<tr><td colspan="2">USFWS, 2005, p. 10.</td><td>May 1-15</td><td>11,200</td></tr>
<tr><td colspan="2"></td><td>May 16-June 15</td><td>1,200</td></tr>
<tr><td rowspan="11">San Joaquin Valley Outflows</td><td rowspan="11">Dry Years</td><td rowspan="11">Pulse Flows for Temp Control, Habitat Inundation and Migration</td><td>Non-VAMP Flow Dates</td><td>VAMP Flow Dates</td><td rowspan="11">7,000 cfs from April through mid-May in 8 years of every 10</td><td rowspan="11">7,000 cfs for 40 days in VAMP-like spring period. Pulse flows based on DFG's San Joaquin River modeling program. DFG's model projects a 60 percent increase in Chipps Island smolt abundance, and a 36 percent increase in projected escapement later.</td><td colspan="2">Average monthly fish doubling flows for combined San Joaquin Valley rivers, other inflows and accretions. (USFWS, 2005, p. 10.)</td><td rowspan="11">March 2,000 cfs; early April 5,000 cfs; late April 10,000 cfs; early May 7,000 cfs; late May 5,000 cfs; June 2,000 cfs. Flow regime recommended for 80 percent of all years (TBI, Exhibit 3, p. 28)</td><td>Date</td><td>Combined San Joaquin Valley Flows</td></tr>
<tr><td>1,420 or 2,280 cfs</td><td>4,020 or 4,880 cfs</td><td>Month</td><td>Flow (cfs)</td><td>February 15 - March 15</td><td>13,400 for 2 days</td></tr>
<tr><td colspan="2" rowspan="9"></td><td>February</td><td>2,700</td><td>March 15 - 31</td><td>4,500</td></tr>
<tr><td>March</td><td>4,700</td><td rowspan="2">April 1-15</td><td rowspan="2">6,700</td></tr>
<tr><td>April</td><td>8,800</td></tr>
<tr><td>May</td><td>11,600</td><td>April 16-20</td><td>8,900</td></tr>
<tr><td colspan="2"></td><td>April 21-30</td><td>1,200</td></tr>
<tr><td colspan="2"></td><td>May 1-6/15</td><td>1,200</td></tr>
</table>

<table>
<tr><th rowspan="3">Location for Flow Criterion</th><th colspan="2" rowspan="3">Ecosystem Function</th><th colspan="2">Current Delta Flow Performance and/or Criteria</th><th colspan="6">Delta Flow Criteria Recommendations, 2010</th></tr>
<tr><th colspan="2">D-1641 (Table 3, pages 184, 186, 187; unless otherwise noted)</th><th>UC Davis Experts (All flows from Table 3, page 19)</th><th>California Department of Fish and Game (DFG, Exhibits 1, 2, 3, and 4; unless otherwise noted)</th><th colspan="2">US Department of the Interior (US DOI, unless otherwise noted)</th><th>Bay Institute (Exhibits 2, 3, and 4)</th><th colspan="2">C-WIN/CSPA (C-WIN, Exhibit 2, Table 4, pp. 30-34; CSPA Exhibit 6)</th></tr>
<tr><th colspan="10">DISCLAIMER: These Delta flow criteria recommendations are compared here for illustrative purposes only. For full descriptions, see the original narrative information submitted as testimony to the State Water Resources Control Board.</th></tr>
<tr><td rowspan="8">San Joaquin Valley Outflows</td><td rowspan="8">Critic Dry Years</td><td rowspan="8">Pulse Flows for Temp Control, Habitat Inundation and Migration</td><td>Non-VAMP Flow Dates</td><td>VAMP Flow Dates</td><td rowspan="8">5,000 cfs in the month of April, every critically dry year.</td><td rowspan="8">7,000 cfs for 31 days in VAMP-like spring period. Pulse flows based on DFG's San Joaquin River modeling program. DFG's model projects a 59 percent increase in Chipps Island smolt abundance, and a 36 percent increase in projected escapement later.</td><td colspan="2">Average monthly fish doubling flows for combined San Joaquin Valley rivers, other inflows and accretions. (USFWS, 2005, p. 10.)</td><td rowspan="8">March 2,000 cfs; April through May, 5,000 cfs; June 2,000 cfs. Minimum flow regime recommended for all years (TBI, Exhibit 3, p. 28)</td><td>Date</td><td>Combined San Joaquin Valley Flows</td></tr>
<tr><td>710 or 1,140 cfs</td><td>3,110 or 3,540 cfs</td><td>Month</td><td>Flow (cfs)</td><td>February 15 - March 15</td><td>13,400 for 2 days</td></tr>
<tr><td></td><td></td><td>February</td><td>2,600</td><td>March 15 - 31</td><td>4,500</td></tr>
<tr><td></td><td></td><td>March</td><td>4,200</td><td>April 1-15</td><td>6,700</td></tr>
<tr><td></td><td></td><td>April</td><td>7,300</td><td>April 16-20</td><td>8,900</td></tr>
<tr><td></td><td></td><td>May</td><td>8,400</td><td>April 21-30</td><td>1,200</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td>May 1-6/15</td><td>1,200</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>San Joaquin Valley Outflows</td><td colspan="2">Base Flows through Stockton Deep Water Ship Channel - including flows for improving Dissolved Oxygen</td><td colspan="2">October only - 1,000 cfs give or take 20% on a daily basis. No dissolved oxygen criterion provided.</td><td>2,000 cfs from July through October in all years.</td><td></td><td colspan="2"></td><td>July through February in all years, 2,000 cfs (TBI, Exhibit 3, p. 28)</td><td colspan="2"></td></tr>
<tr><td>Delta Cross-Channel and Georgiana Slough</td><td colspan="2">Salmonid Juvenile and Smolt Survival via Entrainment Prevention</td><td colspan="2">November through January close DCC gates for up to 45 days in consultation with FWS, NMFS, and DFG. Between May 21 and June 15, close DCC gates for total of 14 days, with similar consultation procedures.</td><td></td><td>In 1992, DFG recommended closing DCC Gates and Georgiana Slough from Feb 1 through June 30 in all water years. (WRINT-DFG Exhibit 8, p. 10; C-WIN Exhibit 20, p. 10)</td><td colspan="2"></td><td></td><td colspan="2">DCC gates would close between February 1 through June 30 in all water years; Georgiana Slough would be closed by an acoustical barrier during the same period.</td></tr>
</table>

Location for Flow Criterion	Ecosystem Function	Current Delta Flow Performance and/or Criteria	Delta Flow Criteria Recommendations, 2010				
		D-1641 (Table 3, pages 184, 186, 187; unless otherwise noted)	UC Davis Experts (All flows from Table 3, page 19)	California Department of Fish and Game (DFG, Exhibits 1, 2, 3, and 4; unless otherwise noted)	US Department of the Interior (US DOI, unless otherwise noted)	Bay Institute (Exhibits 2, 3, and 4)	C-WIN/CSPA (C-WIN, Exhibit 2, Table 4, pp. 30-34; CSPA Exhibit 6)
			DISCLAIMER: These Delta flow criteria recommendations are compared here for illustrative purposes only. For full descriptions, see the original narrative information submitted as testimony to the State Water Resources Control Board.				
Banks, Jones and Contra Costa Pumping Plants	Export Pumping Rate	For Jones and Banks pumping plants only: From April 15 through May 15, no more than 1,500 cfs or 100% of 3-day running average San Joaquin River flow at Vernalis (whichever is greater); Between February through June, the export rate is to be no more than 35 percent of Delta inflow; from July through January, export rate can be no more than 65 percent of Delta inflow.	Recognized as potential parameter, but no recommendations provided.	In 1992, DFG recommended 0 cfs exports at Banks and Jones Pumping Plants from April 1 through June 30 in all water years (WRINT-DFG Exhibit 8, p. 11; C-WIN Exhibit 20, p. 11)		TBI also recommends use of two ratios to regulate export rates in the Delta: the ratio of Vernalis flow to exports (VF:E) in March through May; and the ratio of exports to total inflows (E:I) from December through June in all but wet year. VF:E would be > 4.0 in wet and above normal years, > 3.0 in below normal years, > 2.0 in dry years, and > 1.0 in critical years; E:I would be less than 10 percent in all months in all but wet years. (TBI, Exhibit 4, Table 1, p. 30)	Combined export rate would be 0 cfs in all years, March 16 through June 30.
Mainstem Tributary Streams of the Central Valley Watershed	Inflow Contributions to Delta Outflow			In its 1992 recommendations, DFG stated that SWRCB should consider requiring flow contributions from the tributaries to provide a fair share portion of Delta outflow. DFG suggested allocating responsibility to tributaries based on the period of record from 1906 to present, unimpaired flow share, 50 year averages. (WRINT-DFG Exhibit No. 29, 1992; C-WIN 18, pp. 3-4)			Determine equitable shares of inflows to Delta, expanding responsible parties to include DWR and USBR but other major reservoir owners and water right holders in the Central Valley watershed of the Delta estuary.

Location for Flow Criterion	Ecosystem Function	Current Delta Flow Performance and/or Criteria	Delta Flow Criteria Recommendations, 2010				
		D-1641 (Table 3, pages 184, 186, 187; unless otherwise noted)	UC Davis Experts (All flows from Table 3, page 19)	California Department of Fish and Game (DFG, Exhibits 1, 2, 3, and 4; unless otherwise noted)	US Department of the Interior (US DOI, unless otherwise noted)	Bay Institute (Exhibits 2, 3, and 4)	C-WIN/CSPA (C-WIN, Exhibit 2, Table 4, pp. 30-34; CSPA Exhibit 6)
			DISCLAIMER: These Delta flow criteria recommendations are compared here for illustrative purposes only. For full descriptions, see the original narrative information submitted as testimony to the State Water Resources Control Board.				
Mainstem Tributary Streams of the Central Valley Watershed	Temperature Protection for Juvenile Salmon and Salmon Smolts			Juvenile early rearing, < 61 degrees F; smoltification < 59 degrees F; for steelhead smolts < 57 degrees F. See DFG Exhibit 4, Table 1.	Adopt biological goals of the Anadromous Fish Restoration Program (AFRP) based on 2005 streamflow schedules for AFRP doubling goals. (USDOI, p. 57)	To provide adequate temperatures in the lower San Joaquin River/ southern Delta that avoid lethal effects and increase outmigration success of juvenile Chinook salmon and steelhead, provide flows sufficient to provide average daily water temperatures of 65 degrees F or lower from April 1 through May 31 in all years. (TBI, Exhibit 3, p. 21)	San Joaquin Valley pulse flows above intend to maintain tributary temperatures at no higher than 59 degrees F, and provide migration cues for juvenile salmon, and to get juveniles to the Delta to rear before Delta water temperatures get too warm.**
Sacramento and San Joaquin River Floodplains and Seasonal Wetlands	Floodplain Inundation for Habitat Expansion and Variability		2,500 cfs in base flows between Feb-April in 8 of 10 years to Yolo Bypass. 4,000 cfs pulse flows in March-April, 6 of 10 years to Yolo Bypass		Flood flows on the Sacramento River should exceed 70,000 cfs in at least 6 of 10 years, to enable spillage into Yolo Bypass. (USDOI, p. 54)	By notching Fremont Weir at north end of Yolo Bypass, frequency of floodplain inundation should be maximized (i.e., yearly): 27,500 cfs in early March for 15 days in critical years; 27,500 cfs in March in dry years for 30 days; 30,000 cfs from late February to mid-April in below normal years; 32,500 cfs from February through April for 90 days; and 35,000 cfs from late January through mid-May for 120 days. (TBI, Exhibit 3, Table 3, p. 36)	**Water Year** / **San Joaquin Valley Base/ Pulse Outflows** Critical and Dry: 13,400 cfs for 2 days Below Norm: 13,400 cfs 16 days/ 26,800 cfs for 2 days Above Norm: 13,400 cfs 13 days/ 26,800 cfs for 5 days Wet: 13,400 cfs for 17 days; 26,800 cfs for 5 days Between February 15 and March 15 for assuming equitable portioning of flows from each major tributary stream (p. 30).
		* Combined Valley outflows assumes tributaries are 67.06% of total San Joaquin River flow at Vernalis. Rationale for late winter floodplain inundation flows are obtained from US Fish & Wildlife Service, 2005, *Recommended Streamflow Schedules to Meet the AFRP Doubling Goal in the San Joaquin River Basin*, Table 2, p. 10 (CSPA Exhibit 20, and cited in US DOI testimony for this proceeding); shares of unimpaired runoff obtained from Bulletin 120-2008 (May issue) for unimpaired runoff; Carl Mesick, *Statement of Key Issues on the Volume, Quality, and Timing of Delta Outflows, Necessary for the Delta Ecosystem to Protect Public Trust Resources with Particular Reference to Fall-Run Chinook Salmon in the San Joaquin River Basin,* February 16, 2010, Table 1, p.3 (C-WIN Exhibit 19; CSPA Exhibit 7). Flows for Stanislaus, Tuolumne, and Merced tributaries are about 67 percent of San Joaquin Valley unimpaired flows at Vernalis.					

Location for Flow Criterion	Ecosystem Function	Current Delta Flow Performance and/or Criteria	Delta Flow Criteria Recommendations, 2010				
		D-1641 (Table 3, pages 184, 186, 187; unless otherwise noted)	UC Davis Experts (All flows from Table 3, page 19)	California Department of Fish and Game (DFG, Exhibits 1, 2, 3, and 4; unless otherwise noted)	US Department of the Interior (US DOI, unless otherwise noted)	Bay Institute (Exhibits 2, 3, and 4)	C-WIN/CSPA (C-WIN, Exhibit 2, Table 4, pp. 30-34; CSPA Exhibit 6)
			DISCLAIMER: These Delta flow criteria recommendations are compared here for illustrative purposes only. For full descriptions, see the original narrative information submitted as testimony to the State Water Resources Control Board.				
		** Combined Valley outflows assumes tributaries are 67.06% of total San Joaquin River flow at Vernalis. Rationale for late winter floodplain inundation flows are obtained from Carl Mesick's submitted testimony, C-WIN Exhibit 19, p. 1; CSPA Exhibit 7, p. 1: "Providing winter flows of at least 3,000 cfs [per tributary] to inundate floodplains for at least 2 days in the upper tributary reaches, augments the food supply for juvenile salmon, improves their survival as they migrate through the lower tributaries, and causes about 40 percent of the smolts to begin migrating in late March and early April, compared to 8 percent migrating under base flows [of 275 cfs per tributary]. Early smolt migration is important because it is possible to use flow management to maintain optimum water temperatures throughout the tributaries to the confluence with the San Joaquin River prior to May 15, which helps produce healthy smolts that have a relatively good chance of survival as they migrate through the Delta. Prolonged winter flow releases of 8,000 cfs [from all three tributaries on the San Joaquin River] provide maximum floodplain inundation that provides an even greater increase in food resources, refuge from predators, as well as optimum water temperatures."				