

# Bay-Delta Objectives Exceedance Metrics (Joint SWP/CVP responsibility)<sup>1</sup>

DWR-402

D-1641 <sup>2</sup>	FLOW/OPERATIONAL											WATER QUALITY STANDARDS															
	Fish and Wildlife											Municipal & Industrial				Agriculture											
	Export Limits		E/I Ratio		Delta Outflow		X2		Rio Vista			CCF		Jones		Contra Costa Canal at PP #1		CCC PP #1 or SJR @ Antioch Intake		Sac @ Emmaton		SJR @ Jersey Pt.		Terminous		San Andreas	
	Apr 15-May 15 3-day avg <= Varies <sup>3</sup>		Feb 1-Jun 30 % Diverted <= 35% Inflow Jul 1-Jan 31 % Diverted <= 65% Inflow		Jul 1-Jan 31 NDOI >= Varies by Month and WY Type <sup>3</sup>		Feb 1-Jun 30 14-day or md <= 2.64 EC or NDOI of specified rate		Sept 1-Dec 31 Monthly Avg Flow >= Varies by Month and WY Type			Jan 1-Dec 31 md Cl <= 250 mg/L		Jan 1-Dec 31 md Cl <= 250 mg/L		Jan 1-Dec 31 md Cl <= 250 mg/L		Jan 1-Dec 31 md Cl <= 150 mg/L (No. of days varies by WY type) <sup>4</sup>		Apr 1- Varies by WY 14-day avg <= 0.45 mmhos Varies by WY-Aug 15 14-day avg <= Varies by WY		Apr 1-Varies by WY 14-day avg <= 0.45 mmhos Varies by WY-Aug 15 14-day avg <= Varies by WY		Apr 1- Varies by WY 14-day avg <= 0.45 mmhos Varies by WY-Aug 15 14-day avg <= Varies by WY		Apr 1- Varies by WY 14-day avg <= 0.45 mmhos Varies by WY-Aug 15 14-day avg <= Varies by WY	
No. of Days		No. of Days		No. of Days		No. of Days		No. of Days			No. of Days		No. of Days		No. of Days		No. of Days		No. of Days		No. of Days		No. of Days		No. of Days		
Req'd	Exceed	Req'd	Exceed	Req'd	Exceed	Req'd	Exceed	Req'd	Exceed	Req'd	Exceed	Req'd	Exceed	Req'd	Exceed	Req'd	Exceed	Req'd	Exceed	Req'd	Exceed	Req'd	Exceed	Req'd	Exceed		
1995	31	0	365	0	215	0	150	0	122	0	365	0	365	0	365	0	240	0	137	0	137	0	137	0	137	0	
1996	31	0	366	0	215	0	151	0	122	0	366	0	366	0	366	0	240	0	137	0	137	0	137	0	137	0	
1997	31	0	365	2	215	0	150	0	122	0	365	0	365	0	365	2	240	0	137	0	137	0	137	0	137	0	
1998	31	0	365	0	215	0	150	0	122	0	365	0	365	0	365	0	240	0	137	0	137	0	137	0	137	0	
1999	31	0	365	0	215	0	150	0	122	0	365	0	365	0	365	1	240	0	137	0	137	0	137	0	137	0	
2000	31	0	366	2	215	0	151	0	122	0	366	0	366	0	366	0	240	0	137	0	137	0	137	0	137	0	
2001	31	0	365	0	215	0	150	0	122	0	365	0	365	0	365	3	165	0	137	0	137	0	137	0	137	0	
2002	31	0	365	0	215	0	150	0	122	0	365	0	365	0	365	7	165	0	137	0	137	0	137	0	137	0	
2003	31	0	365	0	215	0	150	0	122	0	365	0	365	0	365	0	190	0	137	0	137	0	137	0	137	0	
2004	31	0	366	0	215	30	151	0	122	0	366	0	366	0	366	0	175	0	137	0	137	0	137	0	137	0	
2005	31	0	365	1	215	0	150	0	122	0	365	0	365	0	365	0	190	0	137	0	137	0	137	0	137	0	
2006	31	0	365	0	215	0	150	0	122	0	365	0	365	0	365	0	240	0	137	0	137	0	137	0	137	0	
2007	31	0	365	0	215	0	150	0	122	0	365	0	365	0	365	0	165	0	137	0	137	0	137	0	137	0	
2008	31	0	366	0	215	0	151	0	122	0	366	0	366	0	366	0	155	0	137	0	137	0	137	0	137	0	
2009	31	0	365	0	215	0	150	0	122	0	365	0	365	0	365	0	165	0	137	0	137	0	137	0	137	0	
2010	31	0	365	2	215	0	150	0	122	0	365	0	365	0	365	0	175	0	137	0	137	0	137	0	137	0	
2011	31	0	365	0	215	0	150	0	122	0	365	0	365	0	365	0	240	0	137	0	137	0	137	0	137	0	
2012	31	0	366	1	215	0	151	0	122	0	366	0	366	0	366	0	175	0	137	0	137	0	137	0	137	0	
2013	31	0	365	0	215	0	150	0	122	0	365	0	365	0	365	0	165	0	137	35	137	0	137	0	137	0	
2014 <sup>5</sup>	31	0	365	0	215	31	150	0	122	0	365	0	365	0	365	0	155	0	137	0	137	0	137	0	137	0	
2015 <sup>6</sup>	31	0	365	0	215	0	150	0	122	4 <sup>7</sup>	365	0	365	0	365	0	155	0	137	15 <sup>8</sup>	137	8	137	0	137	0	
Subtotal	651	0	7,670	8	4,515	61	3,155	0	2,562	4	7,670	0	7,670	0	7,670	13	4,115	0	2,877	50	2,877	8	2,877	0	2,877	0	

See Footnotes on next page.

# Bay-Delta Objectives Exceedance Metrics (Joint SWP/CVP responsibility)<sup>1</sup>

D-1641 <sup>2</sup>	WATER QUALITY STANDARDS (CONTINUED)																								Total No. of Days Standards are Required	Total No. of Days Standards are Exceeded			
	Agriculture (Continued)												Fish & Wildlife																
	Southern Delta						Export Area						SJR Salinity					Eastern Suisun Marsh					Western Suisun Marsh						
	ORT		OR @ MR		Brandt Br.		CCF			Jones			betw. Jersey Pt & Prisoners Pt		Sac @ Collinsville			Montezuma Sl @ National Steel		Mont Sl near Beldon Landing			Chadbourne Sl @ Sunrise Duck Club				Suisun Sl south of Voltani Slough		
Apr 1-Aug 31 30-day avg <= 0.7 EC <sup>9</sup> Sep 1-Mar 31 30-day avg <= 1.0 EC		Apr 1-Aug 31 30-day avg <= 0.7 EC <sup>9</sup> Sep 1-Mar 31 30-day avg <= 1.0 EC		Apr 1-Aug 31 30-day avg <= 0.7 EC <sup>9</sup> Sep 1-Mar 31 30-day avg <= 1.0 EC		Oct 1-Sep 30 Monthly Avg <= 1.0 EC			Oct 1-Sep 30 Monthly Avg <= 1.0 EC			Apr 1-May 31 14-day avg <= 0.44 EC		Oct 1-May 31 Monthly Avg <= Varies by Month			Oct 1-May 31 Monthly Avg <= Varies by Month		Oct 1-May 31 Monthly Avg <= Varies by Month			Oct 1-May 31 Monthly Avg <= Varies by Month		Oct 1-May 31 Monthly Avg <= Varies by Month					
No. of Days		No. of Days		No. of Days		No. of Days			No. of Days			No. of Days		No. of Days			No. of Days		No. of Days			No. of Days		No. of Days					
Req'd	Exceed	Req'd	Exceed	Req'd	Exceed	Req'd	Exceed	Req'd	Exceed	Req'd	Exceed	Req'd	Exceed	Req'd	Exceed	Req'd	Exceed	Req'd	Exceed	Req'd	Exceed	Req'd	Exceed	Req'd	Exceed				
1995	365	0	365	0	365	0	365	0	365	0	61	0	243	0	243	0	243	0	243	0	243	0	243	0	5,867	0			
1996	366	0	366	0	366	0	366	0	366	0	61	0	244	0	244	0	244	0	244	0	244	0	244	0	5,882	0			
1997	365	0	365	0	365	0	365	0	365	0	61	0	243	0	243	0	243	0	243	0	243	0	243	0	5,867	4			
1998	365	0	365	0	365	0	365	0	365	0	61	0	243	0	243	0	243	0	243	0	243	0	243	0	5,867	0			
1999	365	0	365	0	365	0	365	0	365	0	61	0	243	0	243	0	243	0	243	0	243	0	243	0	5,867	1			
2000	366	0	366	0	366	0	366	0	366	0	61	0	244	0	244	0	244	0	244	0	244	0	244	0	5,882	2			
2001	365	0	365	0	365	0	365	0	365	0	61	0	243	0	243	0	243	0	243	0	243	0	243	0	5,792	3			
2002	365	33	365	0	365	0	365	0	365	0	61	0	243	0	243	0	243	0	243	0	243	0	243	0	5,792	40			
2003	365	73	365	0	365	68	365	0	365	0	61	0	243	0	243	0	243	0	243	0	243	0	243	0	5,817	141			
2004	366	0	366	0	366	0	366	0	366	0	61	0	244	0	244	0	244	0	244	0	244	0	244	0	5,817	30			
2005	365	0	365	0	365	0	365	0	365	0	61	0	243	0	243	0	243	0	243	0	243	0	243	0	5,817	1			
2006	365	0	365	0	365	0	365	0	365	0	61	0	243	0	243	0	243	0	243	0	243	0	243	0	5,867	0			
2007	365	109	365	0	365	9	365	0	365	0	61	0	243	0	243	0	243	0	243	0	243	0	243	0	5,792	118			
2008	366	97	366	47	366	28	366	0	366	0	61	0	244	0	244	0	244	0	244	0	244	0	244	0	5,792	172			
2009	365	217	365	0	365	0	365	0	365	0	61	0	243	0	243	0	243	0	243	0	243	0	243	0	5,792	217			
2010	365	38	365	0	365	0	365	0	365	0	61	0	243	0	243	0	243	0	243	0	243	0	243	0	5,802	40			
2011	365	0	365	0	365	0	365	0	365	0	61	0	243	0	243	0	243	0	243	0	243	0	243	0	5,867	0			
2012	366	102	366	0	366	0	366	0	366	0	61	0	244	0	244	0	244	0	244	0	244	0	244	0	5,817	103			
2013	365	136	365	0	365	0	365	0	365	0	61	0	243	0	243	0	243	0	243	0	243	0	243	0	5,792	171			
2014 <sup>5</sup>	365	289	365	35	365	0	365	0	365	0	61	0	243	0	243	0	243	30	243	0	243	0	243	0	5,782	385			
2015 <sup>6</sup>	365	198	365	83	365	119	365	0	365	0	61	0	243	31	243	0	243	0	243	0	243	0	243	0	5,782	458			
Subtotal	7,670	1,292	7,670	165	7,670	224	7,670	0	7,670	0	1,281	0	5,108	31	5,108	0	5,108	30	5,108	0	5,108	0	5,108	0	122,357	1,886			

<sup>1</sup> This analysis only considers those standards for which both Projects (SWP and CVP) are jointly responsible. It does not include those standards for which only one Project is operationally responsible, e.g. Vernalis standards.

<sup>2</sup> The SWP/CVP began operating to the WQCP standards in 1995 as agreed to in the 1994 Bay-Delta Accord prior to being assigned responsibility under D-1641.

<sup>3</sup> Target export rates are explained on page 186 (footnote 18) of D-1641.

<sup>4</sup> Number of days of 150 mg/L Chloride requirement varies by WY Type as follows: Wet = 240 days; Above Normal = 190 days; Below Normal = 175 days; Dry = 165 days; Critical = 155 days.

<sup>5</sup> 2014 was a critical water year that resulted in multiple Temporary Urgency Change Petitions and Orders from the SWRCB. These orders relaxed several D-1641 standards during the year. Apart from a 22 cfs shortfall of the August monthly NDOI, all other conditions of the TUC Order were met. There were no modifications to the South Delta Ag Objectives.

<sup>6</sup> 2015 was a critical water year that has resulted in multiple Temporary Urgency Change Petitions and Orders from the SWRCB. These orders relaxed several D-1641 standards during the year. Apart from an exceedance of the 7-day Rio Vista flow standard and 14-day EC standard at Three Mile Slough referenced below, all other conditions of the TUC Order were met. There were no modifications to the South Delta Ag Objectives.

<sup>7</sup> 7-day running average flow in Sacramento River at Rio Vista (modified from monthly average by July 3, 2015, Temporary Urgency Change Petition)

<sup>8</sup> 14-day average EC at Emmatton requirement was moved to Three Mile Slough (modified by July 3, 2015, Temporary Urgency Change Petition). This exceedance occurred at Three Mile Slough.

<sup>9</sup> The more restrictive South Delta agricultural objective/standard, 0.7 mmhos/cm between April 1-August 31, was not in effect until April 2005. Until then, the requirement was 1.0 mmhos/cm year-round.

Percent of Time Exceeding D-1641 Jointly Responsible Objectives through 2015 = 1.5%

Percent of Time Exceeding D-1485 and D-1641 Jointly Responsible Objectives through 2015 = 1.1%