



Trinity River Restoration Program

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Flow Volume Summary

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Water Volume Summary for Trinity River Releases and Diversions Since 2001.

Water Year (Oct. 1 through Sept. 30)	Forecast Volume [F]	Forecast Type [F]	Actual Type [H]	Full Natural Flow at Lewiston (ac-ft) [C, E, H, I]	Restoration Volume (ac-ft)	Volume Notes	Actual Restoration Release (ac-ft) [A]	Streamgauge Accuracy [A]	Reservoir Management Releases (ac-ft) [A, B]	Ceremonial Releases (ac-ft) [A, B]	Other Releases (e.g. Klamath Sup-plements) (ac-ft) [A, B]	Total Release to Trinity River (ac-ft) [A]	Peak Rate of Release to River (cfs) [A, J]	Diversion to Central Valley (ac-ft) [C]
2001		Dry	Dry	818,200	369,000	D	379,600	10 %	0	4,200	0	383,800	2,140	669,400
2002		Normal	Normal	1,293,500	470,000	D	482,700	10 %	0	0	0	482,700	6,570	629,000
2003		Wet	Wet	1,868,900	453,000	D	448,100	10 %	68,300	5,700	34,000	556,100	2,780	857,600
2004	1,580,000	Wet	Wet	1,512,000	647,000	D	651,000	10 %	81,100	0	36,200	768,300	6,350	987,500
2005	1,244,000	Normal	Wet	1,476,000	647,000	G	647,600	10 %	0	3,600	0	651,200	7,640	466,700
2006	2,105,000	Ext Wet	Ext Wet	2,496,300	815,000	G	809,900	10 %	406,300	0	0	1,216,200	10,400	1,350,600
2007	835,000	Dry	Dry	752,400	453,000	G	453,700	10 %	0	4,100	0	457,800	4,810	614,400
2008	1,066,000	Normal	Dry	874,900	647,000	G	648,700	10 %	0	0	0	648,700	6,890	555,000
2009	852,000	Dry	Dry	834,500	453,000	G	445,500	10 %	0	11,100	0	456,600	4,630	539,200
2010	1,310,000	Normal	Wet	1,602,200	647,000	G	656,700	15 %	0	0	0	656,700	7,840	274,700
2011	1,801,000	Wet	Wet	1,883,000	701,000	G	721,800	15 %	0	10,800	0	732,600	12,300	473,100
2012	1,025,000	Normal	Normal	1,075,400	647,000	G	647,100	10 %	0	0	39,000	686,100	6,180	709,900
2013	828,000	Dry	Dry	853,100	453,000	G	451,900	10 %	0	10,000	18,600	480,500	4,590	852,200
2014	395,000	Crit Dry	Crit Dry	396,200	369,000	G	370,500	10 %	0	0	64,800	435,300	3,460	618,600
2015	934,000	Dry	Dry	899,800	453,000	G	450,700	10 %	0	9,300	47,900	508,000	8,830	450,500
2016	1,600,000	Wet	Wet	1,457,500	701,000	G	708,800	10 %	0	0	39,200	748,000	9,600	278,900
2017	2,265,000	Ext Wet	Ext Wet	2,329,200	815,000	G	821,266	10 %	35,855	8,832	0	865,954	12,000	628,436
2018	530,000	Crit Dry	Crit Dry	546,260	369,000	G	377,072	10 %	0	0	34,051	411,122	2,040	389,893
Total				22,969,360	10,109,000	-	10,172,638	-	591,555	67,632	313,751	11,145,676	-	11,345,629

Notes: The water year spans Oct. 1 to Sept. 30. All water volume values are rounded to the nearest 100 ac-ft.

A. Total annual water volume is computed from the final daily average flow record published by the US Geological Survey for the Trinity River at Lewiston Stream gage 11525500. The measurement error applies to the accuracy of the published stream flow record for a given day within the water year. The total error of a sum of values tends to be less than the error associated with an individual value because positive and negative errors may cancel each other when summed. The US Geological Survey has not conducted the statistical analysis to understand how stream flow measurement errors behave when summed. Consequently, the listed accuracy for published daily average stream flow record is used for the cumulative annual water volume. The true error for the annual water volume totals are expected to be less than those listed.

B. Volume calculated for flows above the TRRP recommended release schedule for restoration (including summer and winter baseflows).

C. Computed from daily average record provided by the Bureau of Reclamation. Reported negative daily inflow values included "as is" in calculations.

D. Restoration water volume limited by Court order 2001-2004. Court ordered volumes varied by year. Court-ordered release restrictions between 2001 and 2004 resulted in a cumulative reduction of 540,600 ac-ft during that time period, as compared to full Record of Decision flow releases.

E. Long-term average annual inflow to Trinity Reservoir (ac-ft/year) from 1911-2007 as provided by the Bureau of Reclamation = 1,254,000 ac-ft.

F. Water year type based on the April 1 st B120 Forecast of Unimpaired Runoff (50% exceedance) from the [Department of Water Resources California Cooperative Snow Surveys](#).

G. Restoration water volume as prescribed by the Trinity River Mainstem Fishery Restoration 2000 Record of Decision.

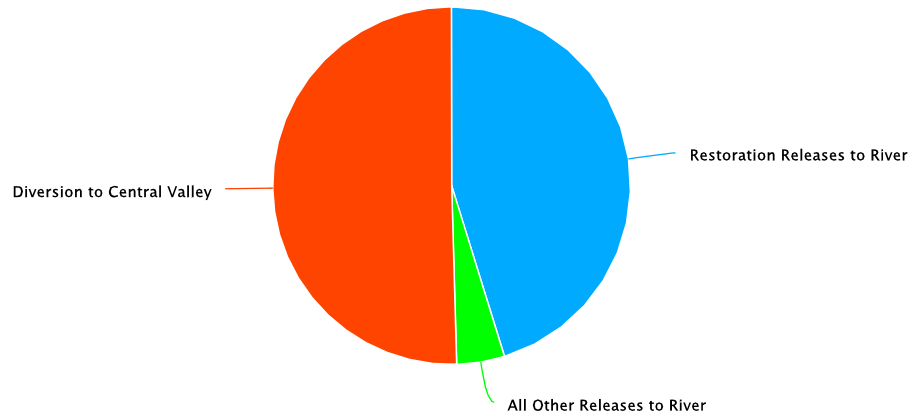
H. The Full Natural Flow is computed by multiplying estimated inflow to Trinity Reservoir by 1.04 to account for the local watershed area between Trinity Dam and the Lewiston Streamgage. The estimated inflow to Trinity Reservoir is computed by the Bureau of Reclamation based on changes in reservoir storage, evaporation, and dam releases. Uncertainty in the reservoir storage and evaporation estimates can lead to negative inflow values being reported. Negative inflow values are erroneous and have been excluded from the calculation of the full natural flow.

I. Beginning in WY2011 the Full Natural Flow at Lewiston is sourced from [Unimpaired Runoff calculations in California Dept. Water Resources basin summary reports](#). Those reports are subject to correction without notice; TRRP strives to capture corrections.

J. The peak rate of release is based on [USGS approved 15-minute flow values at Lewiston](#).

Total Release Proportions

Water Years 2001 – 2018

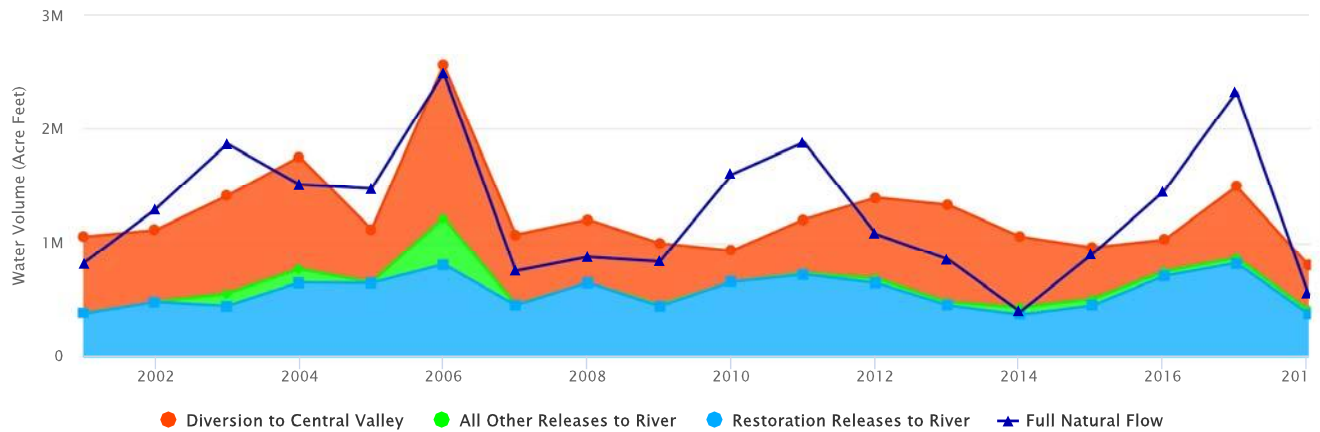


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Prior to the [2000 Record of Decision \(ROD\)](#), diversion to the Central Valley averaged 74%. Under the ROD exports were expected to drop to 52%. This pie-chart shows the actual proportions according to flow measurements beginning from water year 2001. [Reference: [USDI 2000, page 20.](#)]

Total Release Volumes By Water Year

with Full Natural Flow overlay



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This graph provides information on water releases per water year (colored bands) relative to the reservoir inflow (dark blue line, Full Natural Flow). Total releases need not match the inflows within each year because the reservoir allows storage or usage of water. Periods where the dark blue line rises above the colored bands indicate net increases in reservoir storage while periods where the dark blue line falls below the top of the colored bands indicate net reduction of water storage.

RESTORATION FLOW PAGES

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