

Flow Accounting

Paragraph 13(j)(iii) of the Settlement outlines “procedures for determining and accounting for reductions in water deliveries to Friant Division long-term contractors caused by the Interim Flows and Restoration Flows.” The release of water from Friant Dam for the San Joaquin River Restoration Program (SJRRP) depends on the amount of unimpaired runoff into Lake Millerton. The SJRRP uses the Friant Division Water Supply Forecast (unimpaired inflow below Friant Dam) to determine an Interim/Restoration Flow allocation. The Restoration Administrator (RA) makes recommendations on the timing of releases based on river conditions and the specific goals and objectives at that time. Prior to a change in release, the SJRRP analyzes the likely effects on the river and surrounding lands and documents the results. Following that analysis, the SJRRP issues a notification and changes the releases. Releases are then accounted for to identify the final deliveries to Friant Division long-term contractors.

1.1 Allocation: Unimpaired Runoff

The flow schedule for Interim Flows depends on the Water Year unimpaired runoff at Friant Dam and RA flow recommendations. At the start of the Restoration Year on March 1, the water supply is uncertain and requires forecasting. Reclamation determines the 10 percent, 50 percent, and 90 percent exceedence estimates for total unimpaired runoff at Friant Dam using forecasts data from various sources. Reclamation may declare a water supply between the 50 percent and 90 percent probability in scheduling flows for the Friant Division water supply program. Currently, the SJRRP uses the same exceedence probability to allocate Interim/Restorations Flows. The February 2013, 90 percentile forecast resulted in a Normal-Dry year-type (930 through 1,450 thousand acre-feet (TAF)). The forecast decreased to a Dry year-type (670 through 930 TAF) based on the May 29, 2013, 90 percentile forecast, as illustrated in Figure 1-1.

1.2 RA Flow Recommendations

The duties of the RA include making recommendations concerning the manner in which the hydrographs (“Base Flows” described in Exhibit B of the Settlement) shall be implemented and when Buffer Flows (10 percent in addition to Base Flows) are needed to help meet the Restoration Goal (Settlement Paragraphs 13 and 18). The Secretary shall consider and implement the RA’s recommendations to the extent consistent with applicable law, operational criteria, and terms of the Settlement.

On February 1, 2013, the RA made an initial recommendation concerning Interim Flows releases through February 28, 2014. The RA continued to make updated recommendations regarding 2013 Interim Flows in response to new runoff forecasts and operational criteria. In May 2013, Reclamation identified Water Year (WY) 2013 as a Dry year and developed a new default flow schedule for each water supply forecast update.

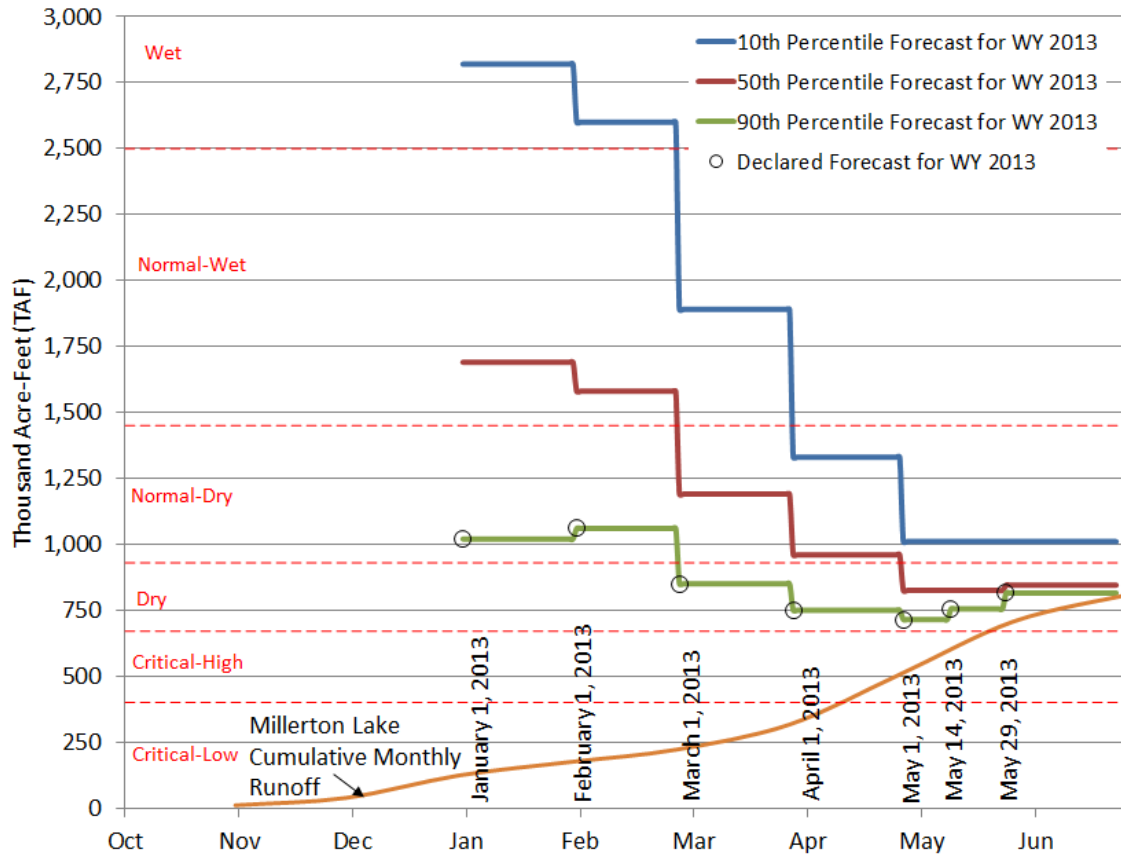


Figure 1-1.
Unimpaired Runoff Forecasts and Actual Cumulative Runoff at Friant Dam for Water Year 2013 Through June 2013

1.3 Flow Record

Reclamation manages Friant Dam releases using forecasts, RA recommendations, applicable law, operational criteria, and other terms of the Settlement. Table 1-1 displays the Water Year 2013 SJRRP flow record.

Because the field losses were higher than the Exhibit B riparian values in the Settlement, Friant releases were varied from RA-recommended rates to meet the flow target at Gravelly Ford. For example, in early November based on observed losses to achieve 575 cubic feet per second (cfs) Gravelly Ford Flow Target during Fall Pulse, Friant releases were varied from 750 to 775 cfs instead of RA recommended release of 700 cfs. Flow releases above the RA recommended flows to compensate for the extra field losses are not counted towards Interim/Restoration Flow accounting. Figure 1-2 plots the San Joaquin River flows for WY 2013.

**Table 1-1.
Water Year 2013 Interim Flow Releases**

From	To	Total Friant Dam Release (cfs)¹	RA Recommended Release (cfs)	Estimated Riparian Release (cfs)²	Estimated Interim Flows Release (cfs)³	Interim Flow Volume (TAF)
10/1/2012	10/10/2012	350	350	160	190	3.8
10/11/2012	10/16/2012	400	350	160	190	2.3
10/17/2012	10/18/2012	375	350	160	190	0.8
10/19/2012	10/20/2012	390	350	160	190	0.8
10/21/2012	10/24/2012	405	350	160	190	1.5
10/25/2012	10/28/2012	375	350	160	190	1.5
10/29/2012	10/31/2012	400	350	160	190	1.1
11/1/2012	11/5/2012	750	700	130	570	5.7
11/6/2012	11/10/2012	775	700	130	570	5.7
11/11/2012	11/11/2012	775	700	120	580	1.2
11/12/2012	11/14/2012	425	350	120	230	1.4
11/15/2012	11/18/2012	470	350	120	230	1.8
11/19/2012	11/19/2012	350	350	120	230	0.5
11/20/2012	11/21/2012	350	350	120	230	0.9
11/22/2012	11/22/2012	400	350	120	230	0.5
11/23/2012	11/25/2012	420	350	120	230	1.4
11/26/2012	11/26/2012	370	350	120	230	0.5
11/27/2012	11/28/2012	350	350	120	230	0.9
11/29/2012	11/29/2012	370	350	120	230	0.5
11/30/2012	12/31/2012	350	350	120	230	14.6
1/1/2013	1/3/2013	350	350	100	250	1.5
1/4/2013	1/8/2013	380	350	100	250	2.5
1/9/2013	1/11/2013	350	350	100	250	1.5
1/12/2013	1/15/2013	400	350	100	250	2.0
1/16/2013	1/18/2013	380	350	100	250	1.5
1/19/2013	2/20/2013	400	350	100	250	16.4
2/21/2013	2/25/2013	400	350	100	250	2.5
2/26/2013	2/28/2013	400	350	100	250	1.5
3/1/2013	3/1/2013	400	350	130	220	0.4
3/2/2013	3/6/2013	380	350	130	220	2.2
3/7/2013	3/10/2013	395	350	130	220	1.7
3/11/2013	3/14/2013	380	350	130	220	1.7
3/15/2013	3/18/2013	400	350	130	220	1.7

**Table 1-1.
Water Year 2013 Interim Flow Releases (contd.)**

From	To	Total Friant Dam Release (cfs)¹	RA Recommended Release (cfs)	Estimated Riparian Release (cfs)²	Estimated Interim Flows Release (cfs)³	Interim Flow Volume (TAF)
3/19/2013	3/21/2013	370	350	130	220	1.3
3/22/2013	3/27/2013	650 ⁺	650	130	520	6.2
3/28/2013	3/31/2013	600 ⁺	600	130	470	3.7
4/1/2013	4/3/2013	600	600	150	450	2.7
4/4/2013	4/11/2013	700	700	150	550	8.7
4/12/2013	4/30/2013	1,060	1,060	150	910	34.3
5/1/2013	5/1/2013	900	900	190	710	1.4
5/2/2013	5/2/2013	700	700	190	510	1.0
5/3/2013	5/3/2013	500	500	190	310	0.6
5/4/2013	5/4/2013	350	350	190	160	0.3
5/5/2013	5/14/2013	275	275	190	85	1.7
5/15/2013	5/16/2013	295	295	190	105	0.4
5/17/2013	5/28/2013	450	450	190	260	6.2
5/29/2013	6/4/2013	350	350	190	160	2.2
6/5/2013	6/9/2013	370	350	190	160	1.6
6/10/2013	6/16/2013	365	350	190	160	2.2
6/17/2013	6/30/2013	380	350	190	160	4.4
7/1/2013	7/4/2013	360	350	230	120	1.0
7/5/2013	7/31/2013	350	350	230	120	6.4
8/1/2013	8/31/2013	350	350	230	120	7.4
9/1/2013	9/30/2013	350	350	210	140	8.3
Total Volume of Interim Flows to Date						186

Notes:

¹ Total Friant Dam releases may vary from RA recommended releases in order to meet Gravelly Ford flow target compliance, unless noted otherwise.

² Per Settlement Exhibit B.

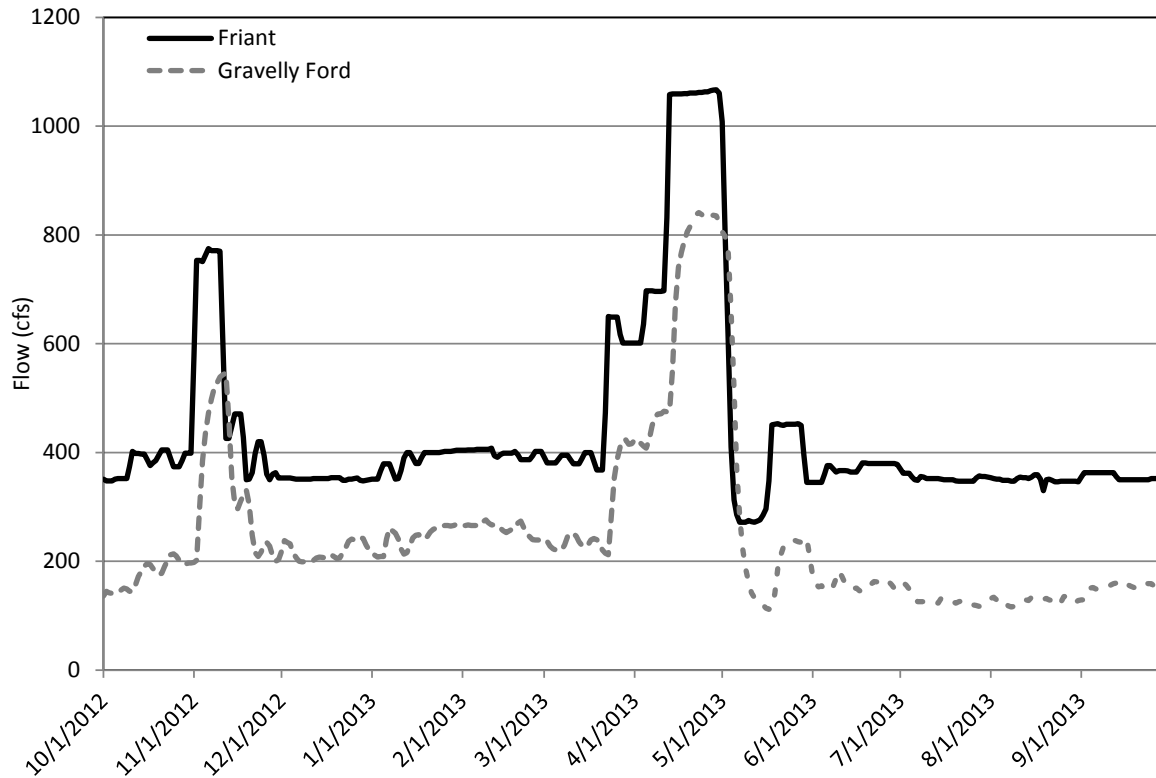
³ Calculated as the difference between RA Recommended releases and the estimated riparian releases.

+ 3/20/13 RA recommended 700 cfs release. Flows restricted due to insufficient exchangeable demand at Mendota Pool.

Key:

cfs = cubic feet per second

TAF = thousand acre-feet



**Figure 1-2.
Water Year 2013 San Joaquin River Flows**

1.4 Water Account Status

Settlement paragraph 13 stipulates that if seepage losses increase beyond Exhibit B assumptions, the Secretary shall release water from Friant Dam such that the volume and timing of Restoration Flows are not otherwise impaired, in consideration of then existing channel capacity. The Secretary is to acquire not less than 40 TAF, only from willing sellers, to prepare for commencing full Restoration Flows (no later than January 1, 2014). The Secretary may take steps to bank, store, or exchange unreleased Restoration Flows with Friant Division long-term contractors or Third Parties for future use to supplement future Restoration Flows. This paragraph will be updated after January 1, 2014, when Restoration Flows are in effect.