STANISLAUS RIVER BASIN PROPOSAL

Oakdale Irrigation District and South San Joaquin Irrigation District ("Districts") respectfully submit this proposal to the State in furtherance of achieving voluntary settlement agreements.

The Districts have participated in the voluntary settlement agreement negotiations with State representatives and Reclamation prior to December 12, 2018, with the intention of achieving a workable settlement for the Stanislaus River Basin. Unfortunately, we were unable to achieve a settlement by the State's December 12, 2018, deadline. The Districts have continued to express interest and optimism for a settlement after Board Member, now Chair, Joaquin Esquivel's suggestion on December 12, 2019, that more parties are encouraged to reach settlements. This has not occurred on the Stanislaus River prior to March 1, 2019. As a result, the Districts feel it necessary to put forth our own proposed settlement for the State to consider.

Base Flow:

The base flow shall be the flows proposed by Reclamation in its January 31, 2019 Biological Assessment ("BA") for the OCAP-BO. This stair-step approach is set forth in Appendix 1. There are flows for each year under the five classifications.

The proposed flows are designated by the San Joaquin River Basin Index, 60-20-20. The proposed BA flows no longer are established by the New Melones Index. The 60-20-20 index is more reflective of current year's hydrology in the basin. In effect, the 60-20-20 index preserves reservoir storage during extended drought.

The average annual unimpaired runoff of the Stanislaus River Basin is 1,050,000 acre-feet.

The annual runoff and BA Base Flows by year type are:

	Unimpaired Flow (UIF)		BA Base Flows		As % of UIF	
	Annual	Feb-June	Annual	Feb-June	Annual	Feb-June
W	1,821,000	1,358,000	483,678	341,460	27%	25%
AN	1,295,000	997,000	345,724	214,416	27%	22%
BN	934,000	794,000	345,724	214,416	37%	27%
D	678,000	564,000	234,154	120,895	35%	21%
C	462,000	388,000	185,259	85,092	40%	22%

Pulse Flow:

In addition to the base flow, Oakdale Irrigation District ("OID") and South San Joaquin Irrigation District ("SSJID") are willing to make 50,000 acre-feet available in AN, BN, and D

years. This water will be made available at New Melones. It will be scheduled by the Stanislaus Watershed Team (successor to the Stanislaus Operating Group "SOG"). The water will be released at Goodwin. It will be diverted by the CVP and SWP in the Delta. It will be paid for by the Central Valley Project (CVP) and State Water Project (SWP) Contractors. The diversions by the exporters of this water will take place consistent with sections 4001-4006 of the WIIN Act. (Pub. L. 114-322, 130 Stat. 1628).

This water will change the % of the UF Feb-June from:

	Base	Base +
AN	22%	27%
BN	27%	33%
D	21%	30%

Baseline:

There has been much discussion regarding the appropriate baseline to compare proposals. For this analysis, the Districts have used the setting associated with the initial implementation of D-1641.

The San Joaquin River Agreement ("SJRA") that implemented the 1995 WQCP was predicated on Reclamation releasing water in April and May pursuant to the New Melones Interim Operation Plan ("NMIOP"). The New Melones Interim Operation Plan is attached as Appendix 2. The Parties to the SJRA agreed that if Reclamation released its flows, as set forth in the New Melones Interim Operation Plan, the Tuolumne, Merced and San Joaquin River Exchange Contractors Water Authority would make up the difference between what was required and what was at Vernalis with Reclamation's releases.

In 2009, Reclamation accepted the Reasonable and Prudent Alternatives ("RPAs") for the OCAP-BO. One of the RPAs included Appendix 2e, a flow schedule for New Melones that replaced the New Melones Interim Operation Plan flows. Appendix 2e flows are set forth in Appendix 3, attached. Since 2010, Reclamation has been operating New Melones to Appendix 2e Flows.

The difference between Appendix 2e flows and New Melones Interim Operation Plan flows are set forth below (Note: AA-Average Annual):

	2e Annual (AF)	NMIOP Annual (AF)
W	589,000	467,000
AN	484,000	345,000-467,000
BN	247,000	125,000-345,000
D	234,000	98,000-125,000
C	185,000	98,000

	2e Feb-June (AF)	As % of Feb-June UF	NMIOP Feb-June (AF)	As % of Feb-June UF
W	405,000	26%	314,000	21%
AN	341,000	31%	262,000	26%
BN	215,000	29%	153,000	24%
D	121,000	17%	71,000	12%
C	85,000	15%	51,000	13%

Appendix 2e flows are significantly above the NMIOP, which was Reclamation's contribution to D-1641.

The proposed BA Base flows compared to 2e flows are shown below:

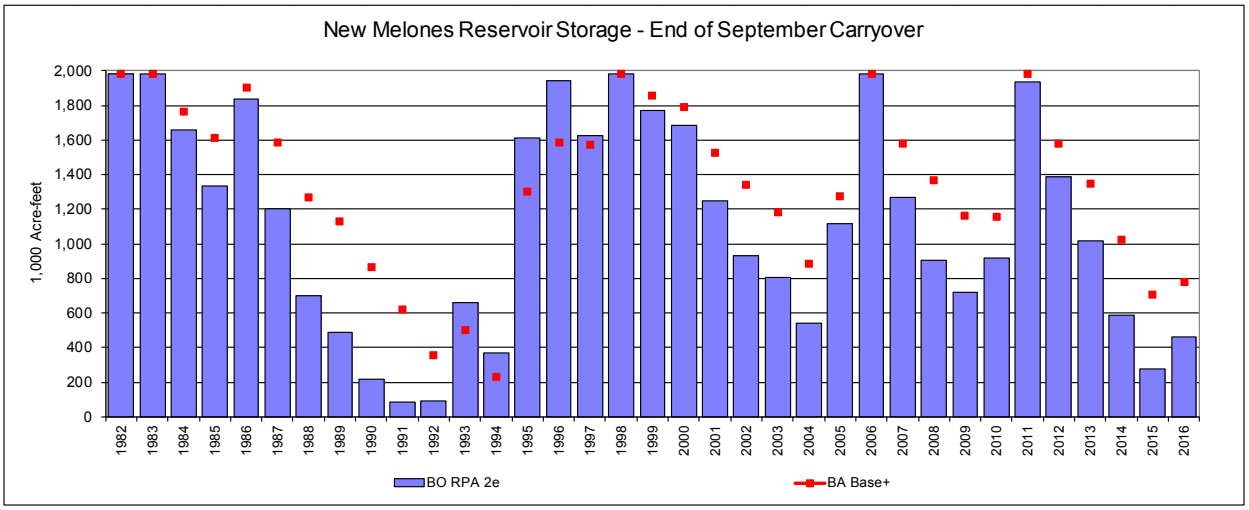
	BA Base Feb-June (AF)	As % of Feb-June UF	Appendix 2e Feb-Jun (AF)	As % of Feb-June UF
W	341,460	25%	405,000	26%
AN	214,416	21%	341,000	31%
BN	214,416	27%	215,000	29%
D	120,895	21%	121,000	17%
C	85,092	22%	85,000	15%

The proposed BA flows with the plus (+) flows from the Districts compared to 2e flows:

	BA Base+ Feb-June (AF)	As % of Feb-June UF	Appendix 2e Feb-June (AF)	As % of Feb-June UF
W	341,460	25%	405,000	26%
AN	264,416	26%	341,000	31%
BN	264,416	33%	215,000	29%
D	170,895	30%	121,000	17%
C	85,092	22%	85,000	15%

Storage:

Storage in New Melones under BA Base+ improves dramatically when compared to 2e. This improves protection for Central Valley steelhead (*Oncorhynchus mykiss*) below an impassable dam. What was observed on the Stanislaus River during the 2012-2016 drought was depleted storage in New Melones. Depleted storage in connection with physical limitations at New Melones caused increased water temperatures from Goodwin Dam and water temperatures increasing as the flow moved downstream. This increase in water temperature caused the *O. mykiss* population below Goodwin to plummet from a long-term average of just over 20,000 fish to only 5,012 fish (Peterson, *et al.,* 2015). High water temperatures also impacted incubating fall-run Chinook salmon eggs during fall 2014, leading to a 70% reduction in juvenile production in 2015 (n=232,202) relative to production in 2014 (n=769,394) with a similar number of spawners (5,422 and 5,377, respectively).



There is no minimum carryover storage requirements as part of this proposal.

There is no refill requirement for water made available pursuant to the Agreement.

Habitat Projects:

A percentage of the proceeds from the sale of 50,000 acre-feet in AN, BN, and D years will be used to pay for habitat improvement projects on the Stanislaus. The entities on the river generally agree to the following projects:

- Stanislaus River Salmonid Spawning and Rearing Habit Restoration - Two Mile Bar
- Secondary/off Channel Rearing Habitat between Goodwin Dam and Oakdale
- Habitat Complexity
- Canyon Reach Spawning Habitat and Channel Complexity
- Stanislaus River Salmonid Spawning and Rearing Habitat Restoration - Goodwin Dam

- Goodwin Gravel - Large Scale
- Honolulu Bar Phase 2
- Lover's Leap Bench Lowering
- Migratory Corridor Rehabilitation
- Kerr Park Restoration
- Rodden Road Restoration
- Knights Ferry Floodplain and Side Channel Project
- Tulloch Low Level Outlet Improvements

These projects have been identified by CVPIA and DFW. \

Science:

The Districts, for the term this proposal, would agree to continue the rigorous monitoring program they started in 1994. This program, developed and funded voluntarily by the Districts, already provides a strong foundation upon which to build future biological goals and monitoring under this settlement.

The Districts will continue weir monitoring to obtain precise counts, sex ratios, sizes, and disposition of the adipose fin of escaping adult fall-run Chinook salmon. An analysis of the influence of environmental factors on adult upstream migration, as measured at the weir, was recently published (Peterson, *et al*., 2017). The weir also provides precise counts and size information for *O. mykiss.*

The Districts will continue redd surveys to document the timing and geographic distribution of fall-run Chinook salmon spawning. This has proven useful as an additional body of evidence for assessing carrying capacity and how adult salmon respond to increased water temperatures.

The Districts will continue rotary screw trap monitoring at Oakdale to estimate the abundance and migration timing of juvenile Chinook salmon and *O. mykiss*. An analysis of the statistical methods for estimating abundance is in press and expected to be published in March 2019. Measuring abundance at this site provides estimates of juvenile production per female spawner for stock-recruitment analyses, in conjunction with the weir monitoring.

The Districts request that NMFS/USFWS/Reclamation continue to fund rotary screw trap monitoring at Caswell and make this data available. In many years the Caswell traps have not been operated consistently and continuously, creating unnecessary uncertainty in the data. Comparison of abundance at Oakdale to abundance at Caswell provides an index of survival for naturally produced juvenile Chinook salmon.

The Districts will continue monitoring use of floodplains by juvenile salmon and other species during February-June. Previous studies were conducted in 2013, 2014, and 2017.

The Districts will continue monitoring the oversummering abundance and distribution of *O. mykiss* annually. Despite the rapid decline in abundance during the drought, annual snorkel surveys documented a rapid response to improved water temperatures coming out of the drought.

As part of the WIIN Act, the Districts, in conjunction with NMFS, have implemented a Native Fish Recovery Program on the Stanislaus. This research and monitoring program is designed to provide information regarding the abundance and distribution of native and non-native species, the diets of potential predator species. The program also includes removal and relocation of non-native predator species and assessing responses of the native fish community (abundance and distribution), the non-native fish community (abundance, age class, recruitment, and distribution), predation risk, and salmon survival. The Districts agree to continue funding this important project for the term of the proposal.

Data collected by FISHBIO for the Districts has been, and will continue to be, publicly available.

The stock-recruitment approach to setting biological objectives recommended by the DSC ISB panel-report is obtainable on the Stanislaus River due to the lengthy collection of quality data. This baseline provides for more valuable, and likely faster, assessment of responses to future management actions. Two impediments are slow reporting of hatchery proportions in the escaping population from the Constant Fractional Marking program, and age data from analysis of scales collected by CDFW during carcass surveys. Both of the current limitations can easily be overcome. The data exist for recent years and efforts are ongoing, ensuring collection in future years. It is simply a matter of analyzing and providing the results.

The DSC ISB panel notes that the negative effects of hatchery salmon on wild salmon are well-established and identifies the potential to exclude hatchery origin spawners using a weir. The report indicates this can only be done for winter- and spring-run which are 100% marked, but not for fall-run Chinook salmon which are only marked at a rate of ~25%. The Districts recommend that "ALL" hatchery fish be marked. This will expedite reporting of the proportion hatchery fish in the escapement (a current limitation discussed previously), and will provide for options such as a mark-select fishery and/or exclusion of hatchery fish from non-hatchery streams. The Districts will contribute $100,000 annually to this effort as part of this proposal.

Biological Goals: (These are not WQCP Objectives)

The DSC ISB Panel Report listed eight possible methods to evaluate progress towards biological goals including abundance trends; distribution and abundance of indicator species; collective abundance and distribution of non-native fishes; and a metric to measure response of native fish to flow releases below dams. The following goals have been identified with these metrics and the proposed monitoring program in mind:

	Goal	Action(s)	Metric(s)
Chinook salmon	Increase FRCS juvenile production per female spawner	Habitat restoration	-Female salmon abundance at weir -Redd distribution/superimposition -Juvenile salmon production at Oakdale -Juveniles produced per spawning female
	Increase juvenile FRCS survival to Caswell	Habitat restoration; flow; reduced non-native fish community	-Juvenile salmon abundance at Oakdale -Juvenile salmon abundance at Caswell -Survival index (Caswell/Oakdale)
	Reduce proportion of hatchery spawners	Reduce off-site releases	-Hatchery release data
		100% marking	-Proportion hatchery estimated at weir near Riverbank
O. mykiss	Maintain current distribution of *O. mykiss*	Temperature management	-Annual oversummering abundance and distribution
	Successful reproduction in all years		
	Implement additional data collection to inform stock-recruit analyses and further understand lifehistory expression	Augment monitoring program	-Additional capture/recapture methods
Native fishes	Increase proportion native fish in lower river community	Experimental relocation of non-native fishes; habitat restoration; flow	-Relative abundance of native and non-native fishes through electrofishing

Term:

Twenty (20) years. This is necessary to complete the habitat projects, NFRP, marking, salmon life cycles, hydrologic variation.

Reporting:

The Stanislaus will make an annual report available to the public on hydrology, reservoir operations, instream flow releases, water temperatures, habitat projects, any studies or analysis from non-flow measures, diversions, crops, groundwater, recreation, hydropower production, carbon +/- due to proposal, and groundwater sustainability.

Basin Sustainability:

The CVP Contractors, SEWD, and CSJWCD have agreed as part of this proposal to forego a substantial amount of their contracts water during the term of this proposal. There is a need for 10,000 acre-feet in critical years by SEWD to serve its M&I customers. As part of this proposal, the Districts have agreed to transfer 10,000 acre-feet to SEWD in Critical years.

The Chicken Ranch Rancheria of Me-Wuk Indians of California has an unmet need. Reclamation has been unwilling or is incapable of providing the Chicken Ranch Rancheria of Me-Wuk Indians of California a water service contract. The Districts have agreed to transfer 4,000 acre-feet annually to the Chicken Ranch Rancheria of Me-Wuk Indians of California as part of this proposal.

The ESJCGWB is critically over-drafted. This proposal maintains an amount of surface water to assist all entities in ESJCGWB in attaining sustainability.

Support for Disadvantaged Communities:

The Stanislaus River Basin serves a number of communities qualified as "disadvantaged communities" by Senate Bill 535. These communities include Stockton, Lathrop, Lincoln Village, Garden Acres, Country Club, Manteca, Tracy, and Oakdale. Of these disadvantaged communities, two in particular are identified as having water supply systems that are out of compliance with state safe drinking water standards: Stockton and Manteca. Those two communities collectively serve approximately 389,750 citizens. Continued service of safe water from the Stanislaus River Basin to these disadvantaged communities is therefore a matter of great importance, especially in dry and critically dry years.

COMPARISON

The Districts thought it would be helpful for the State to see how this proposal compares to a proposed Voluntary Agreement in the SJR Basin. Since the Mokelumne River is just north of the Stanislaus River, is in the San Joaquin River Basin, and has a VSA with DFW, we chose it.

The annual average unimpaired runoff in the Stanislaus River Basin is 1,050,000. In the Mokelumne, it is 734,000 acre-feet annually. The Mokelumne's hydrology is approximately 70% of the Stanislaus. Storage on the Mokelumne is approximately 842,000 acre-feet and is comprised of Pardee Dam and Reservoir, Camanche Dam and Reservoir, and reservoirs operated by PG&E. The total combined storage capacity of Pardee and Camanche is approximately 621,000 acre-feet.

Storage on the Stanislaus is approximately 2,860,000 acre-feet, and is comprised of New Melones Dam and Reservoir, Beardsley Dam and Reservoir, Donnells Dam and Reservoir, Tulloch Dam and Reservoir, and New Spicer Meadow Reservoir. The storage capacity of New Melones is 2,400,000 acre-feet.

The Mokelumne serves 1.4 million customers in the East Bay.

The Stanislaus River supplies approximately 700,000 acre-feet annually to approximately 347,000 agricultural acres, and to 190,000 residents in Manteca, Lathrop, and Tracy.

Flow:

Flows listed under the Mokelumne River column represent minimum Joint Settlement Agreement ("JSA") flows adopted by the State Water Resources Control Board in D-1641. Flows listed under the Stanislaus River column display Reclamation's proposed stair-step flow approach from the January 31, 2019 BA.

	JSA Mokelumne Annual (AF)		Stanislaus BA Annual (AF)
W	195,850		438,678
AN	195,850		345,724
BN	154,900		345,724
D	131,320		234,154
C	84,820		185,259

	JSA Mokelumne Feb-June (AF)	% of UF Feb. -Jun.	BA Stanislaus Feb-June (AF)	% of UF Feb. - Jun.
W	97,500	12%	341,460	25%
AN	97,500	14%	214,416	22%
BN	75,000	14%	214,416	27%
D	58,800	14%	120,894	21%
C	35,340	14%	85,092	22%

For the Mokelumne River, the percent of unimpaired flow ("% of UF Feb.-Jun.") column was calculated by summing current JSA flows for February - June and dividing this total by the average unimpaired flow for February - June at Pardee Reservoir by water year type. For the Stanislaus River, the percent of unimpaired flow was calculated by summing the February - June BA flows and dividing this total by the average unimpaired flow for February - June at Goodwin by water year type.

Settlement Agreement:

The Principles Agreement to Develop a Voluntary Agreement Concerning Mokelumne River Flow and Non-Flow Measures (hereafter "Settlement Agreement") calls for releasing additional spring (March – May) and fall (September – October) "block flows" from Camanche Reservoir beyond the minimum flows required under the JSA.

The size of the block flow is determined by water year type. In Critical years, no spring block flows are required. In Dry years, the Settlement Agreement calls for a block flow of 75-85% of 10,000 AF. In Below Normal years, spring block flows are 75-85% of 20,000 AF. In Normal (Wet) and Above Normal years, spring block flows are 75-85% of 45,000 AF.

This water is "new" water and is clearly above the JSA/D-1641 baseline.

Let's compare the Settlement Agreement flows to the proposed Stanislaus River BA+ flows.

	Mokelumne Feb-June (JSA + VSA) (AF)	% of UF Feb. - Jun.	Stanislaus Feb-June (BA+) (AF)	% of UF Feb. - Jun
W	131,250	16%	341,460	25%
AN	131,250	19%	264,000	26%
BN	90,000	16%	264,000	33%
D	66,300	16%	171,000	30%
C	35,340	14%	85,092	22%

The Mokelumne is roughly 70% of the Stanislaus. One would expect the flows on the Mokelumne would be lower than the Stanislaus River. One way to look at an equal comparison of what the Stanislaus is proposing versus the Settlement Agreement on the Mokelumne is to increase the Mokelumne flows to match the % of UF for February - June that the Stanislaus River BA+ flows produce.

	Proposed JSA + VSA Feb-June (AF)	BA+ % of UF Feb-June	JSA + VSA Feb-June to match BA+ Feb-June % of UF (AF)	Increase in JSA + VSA Needed to Match BA+ Feb-June % of UF (AF)
W	131,250	N/A	N/A	N/A
AN	131,250	26%	175,000	43,750
BN	90,000	33%	181,170	91,170
D	66,300	30%	122,400	56,100
C	35,340	N/A	N/A	N/A

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Appendix B New Melones Stepped Release Plan Daily Hydrographs for Critical, Dry, Below Normal, Above Normal and Wet Year Types

(APPENDIX 1)

New Melones Stepped Release Plan Daily Hydrographs for Critical Year Types

OCT	CFS	NOV	CFS	DEC	CFS	JAN	CFS	FEB	CFS	MAR	CFS	APR	CFS	MAY	CFS	JUN	CFS	JUL	CFS	AUG	CFS	SEP	CFS
1	200	1	200	1	200	1	200	1	200	1	200	1	200	1	725	1	150	1	150	1	150	1	150
2	200	2	200	2	200	2	200	2	200	2	200	2	200	2	725	2	150	2	150	2	150	2	150
3	200	3	200	3	200	3	400	3	200	3	200	3	200	3	725	3	150	3	150	3	150	3	150
4	200	4	200	4	200	4	400	4	200	4	200	4	200	4	725	4	150	4	150	4	150	4	150
5	200	5	200	5	200	5	200	5	400	5	200	5	200	5	725	5	150	5	150	5	150	5	150
6	200	6	200	6	200	6	200	6	400	6	200	6	200	6	725	6	150	6	150	6	150	6	150
7	200	7	200	7	200	7	200	7	200	7	200	7	200	7	725	7	150	7	150	7	150	7	150
8	200	8	200	8	200	8	200	8	200	8	200	8	200	8	725	8	150	8	150	8	150	8	150
9	200	9	200	9	200	9	200	9	200	9	200	9	200	9	725	9	150	9	150	9	150	9	150
10	200	10	200	10	200	10	200	10	200	10	200	10	200	10	725	10	150	10	150	10	150	10	150
11	200	11	200	11	200	11	200	11	200	11	200	11	200	11	725	11	150	11	150	11	150	11	150
12	200	12	200	12	200	12	200	12	200	12	200	12	200	12	725	12	150	12	150	12	150	12	150
13	200	13	200	13	200	13	200	13	200	13	200	13	200	13	550	13	150	13	150	13	150	13	150
14	200	14	200	14	200	14	200	14	200	14	200	14	200	14	450	14	150	14	150	14	150	14	150
15	500	15	200	15	200	15	200	15	200	15	200	15	350	15	300	15	150	15	150	15	150	15	150
16	750	16	200	16	200	16	200	16	200	16	200	16	500	16	150	16	150	16	150	16	150	16	150
17	1000	17	200	17	200	17	200	17	200	17	200	17	725	17	150	17	150	17	150	17	150	17	150
18	1250	18	200	18	200	18	200	18	200	18	200	18	725	18	150	18	150	18	150	18	150	18	150
19	1250	19	200	19	200	19	200	19	200	19	200	19	725	19	150	19	150	19	150	19	150	19	150
20	1250	20	200	20	200	20	200	20	200	20	200	20	725	20	150	20	150	20	150	20	150	20	150
21	1250	21	200	21	200	21	200	21	200	21	200	21	725	21	150	21	150	21	150	21	150	21	150
22	1250	22	200	22	200	22	200	22	200	22	200	22	725	22	150	22	150	22	150	22	150	22	150
23	1250	23	200	23	200	23	200	23	200	23	200	23	725	23	150	23	150	23	150	23	150	23	150
24	1250	24	200	24	200	24	200	24	200	24	200	24	725	24	150	24	150	24	150	24	150	24	150
25	1250	25	200	25	200	25	200	25	200	25	200	25	725	25	150	25	150	25	150	25	150	25	150
26	1000	26	200	26	200	26	200	26	200	26	200	26	725	26	150	26	150	26	150	26	150	26	150
27	750	27	200	27	200	27	200	27	200	27	200	27	725	27	150	27	150	27	150	27	150	27	150
28	500	28	200	28	200	28	200	28	200	28	200	28	725	28	150	28	150	28	150	28	150	28	150
29	200	29	200	29	200	29	200			29	200	29	725	29	150	29	150	29	150	29	150	29	150
30	200	30	200	30	200	30	200			30	200	30	725	30	150	30	150	30	150	30	150	30	150
31	200			31	200	31	200			31	200			31	150			31	150	31	150		
mo cfs	17900		6000		6200		6600		6000		6200		13800		12400		4500		4650		4650		4500
conv factor	1.984																						
mo af	35505	0	11901	0	12298	0	13091	0	11901	0	12298	0	27372	0	24595	0	8926	0	9223	0	9223	0	8926
yr af	2E+05																						

New Melones Stepped Release Plan Daily Hydrographs for Dry Year Types

OCT	CFS	NOV	CFS	DEC	CFS	JAN	CFS	FEB	CFS	MAR	CFS	APR	CFS	MAY	CFS	JUN	CFS	JUL	CFS	AUG	CFS	SEP	CFS
1	200	1	200	1	200	1	200	1	200	1	200	1	200	1	1000	1	200	1	200	1	200	1	200
2	200	2	200	2	200	2	200	2	200	2	200	2	200	2	1000	2	200	2	200	2	200	2	200
3	200	3	200	3	200	3	400	3	200	3	200	3	200	3	1000	3	200	3	200	3	200	3	200
4	200	4	200	4	200	4	400	4	200	4	200	4	200	4	1000	4	200	4	200	4	200	4	200
5	200	5	200	5	200	5	400	5	400	5	200	5	200	5	1000	5	200	5	200	5	200	5	200
6	200	6	200	6	200	6	200	6	400	6	200	6	200	6	1000	6	200	6	200	6	200	6	200
7	200	7	200	7	200	7	200	7	400	7	200	7	200	7	1000	7	200	7	200	7	200	7	200
8	200	8	200	8	200	8	200	8	200	8	200	8	350	8	1000	8	200	8	200	8	200	8	200
9	200	9	200	9	200	9	200	9	200	9	200	9	500	9	1000	9	200	9	200	9	200	9	200
10	200	10	200	10	200	10	200	10	200	10	200	10	750	10	1000	10	200	10	200	10	200	10	200
11	200	11	200	11	200	11	200	11	200	11	200	11	1000	11	1000	11	200	11	200	11	200	11	200
12	200	12	200	12	200	12	200	12	200	12	200	12	1000	12	1000	12	200	12	200	12	200	12	200
13	200	13	200	13	200	13	200	13	200	13	200	13	1000	13	1000	13	200	13	200	13	200	13	200
14	200	14	200	14	200	14	200	14	200	14	200	14	1000	14	1000	14	200	14	200	14	200	14	200
15	500	15	200	15	200	15	200	15	200	15	200	15	1000	15	1000	15	200	15	200	15	200	15	200
16	750	16	200	16	200	16	200	16	200	16	200	16	1000	16	800	16	200	16	200	16	200	16	200
17	1000	17	200	17	200	17	200	17	200	17	200	17	1000	17	600	17	200	17	200	17	200	17	200
18	1250	18	200	18	200	18	200	18	200	18	200	18	1000	18	450	18	200	18	200	18	200	18	200
19	1250	19	200	19	200	19	200	19	200	19	200	19	1000	19	300	19	200	19	200	19	200	19	200
20	1250	20	200	20	200	20	200	20	200	20	200	20	1000	20	200	20	200	20	200	20	200	20	200
21	1500	21	200	21	200	21	200	21	200	21	200	21	1000	21	200	21	200	21	200	21	200	21	200
22	1500	22	200	22	200	22	200	22	200	22	200	22	1000	22	200	22	200	22	200	22	200	22	200
23	1500	23	200	23	200	23	200	23	200	23	200	23	1000	23	200	23	200	23	200	23	200	23	200
24	1250	24	200	24	200	24	200	24	200	24	200	24	1000	24	200	24	200	24	200	24	200	24	200
25	1250	25	200	25	200	25	200	25	200	25	200	25	1000	25	200	25	200	25	200	25	200	25	200
26	1250	26	200	26	200	26	200	26	200	26	200	26	1000	26	200	26	200	26	200	26	200	26	200
27	1000	27	200	27	200	27	200	27	200	27	200	27	1000	27	200	27	200	27	200	27	200	27	200
28	750	28	200	28	200	28	200	28	200	28	200	28	1000	28	200	28	200	28	200	28	200	28	200
29	500	29	200	29	200	29	200			29	200	29	1000	29	200	29	200	29	200	29	200	29	200
30	200	30	200	30	200	30	200			30	200	30	1000	30	200	30	200	30	200	30	200	30	200
31	200			31	200	31	200			31	200			31	200			31	200	31	200		
mo cfs	19700		6000		6200		6800		6200		6200		23000		19550		6000		6200		6200		6000
conv factor	1.9835																						
mo af	39075	0	11901	0	12298	0	13488	0	12298	0	12298	0	45621	0	38777	0	11901	0	12298	0	12298	0	11901

New Melones Stepped Release Plan Daily Hydrographs for Below Normal Year Types

OCT	CFS	NOV	CFS	DEC	CFS	JAN	CFS	FEB	CFS	MAR	CFS	APR	CFS	MAY	CFS	JUN	CFS	JUL	CFS	AUG	CFS	SEP	CFS
1	250	1	200	1	200	1	200	1	200	1	200	1	400	1	1500	1	900	1	250	1	250	1	250
2	250	2	200	2	200	2	200	2	200	2	200	2	750	2	1500	2	600	2	250	2	250	2	250
3	250	3	200	3	200	3	400	3	200	3	200	3	1000	3	1500	3	600	3	250	3	250	3	250
4	250	4	200	4	200	4	400	4	200	4	200	4	1250	4	1500	4	600	4	250	4	250	4	250
5	250	5	200	5	200	5	400	5	400	5	200	5	1500	5	1500	5	600	5	250	5	250	5	250
6	250	6	200	6	200	6	400	6	400	6	200	6	1700	6	1500	6	600	6	250	6	250	6	250
7	250	7	200	7	200	7	200	7	400	7	200	7	2000	7	1500	7	450	7	250	7	250	7	250
8	250	8	200	8	200	8	200	8	400	8	200	8	2000	8	1500	8	450	8	250	8	250	8	250
9	250	9	200	9	200	9	200	9	200	9	200	9	2000	9	1500	9	450	9	250	9	250	9	250
10	250	10	200	10	200	10	200	10	200	10	200	10	1500	10	1500	10	450	10	250	10	250	10	250
11	250	11	200	11	200	11	200	11	200	11	200	11	1500	11	1500	11	300	11	250	11	250	11	250
12	250	12	200	12	200	12	200	12	200	12	200	12	1500	12	1500	12	300	12	250	12	250	12	250
13	250	13	200	13	200	13	200	13	200	13	200	13	1500	13	1500	13	300	13	250	13	250	13	250
14	250	14	200	14	200	14	200	14	200	14	200	14	1500	14	1250	14	300	14	250	14	250	14	250
15	500	15	200	15	200	15	200	15	200	15	200	15	1500	15	1250	15	250	15	250	15	250	15	250
16	750	16	200	16	200	16	200	16	200	16	200	16	1500	16	1250	16	250	16	250	16	250	16	250
17	1000	17	200	17	200	17	200	17	200	17	200	17	1500	17	1250	17	250	17	250	17	250	17	250
18	1250	18	200	18	200	18	200	18	200	18	200	18	1500	18	1250	18	250	18	250	18	250	18	250
19	1500	19	200	19	200	19	200	19	200	19	200	19	2000	19	1250	19	250	19	250	19	250	19	250
20	1500	20	200	20	200	20	200	20	200	20	200	20	2000	20	1000	20	250	20	250	20	250	20	250
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23	1500	23	200	23	200	23	200	23	200	23	200	23	1500	23	1000	23	250	23	250	23	250	23	250
24	1500	24	200	24	200	24	200	24	200	24	200	24	1500	24	1000	24	250	24	250	24	250	24	250
25	1500	25	200	25	200	25	200	25	200	25	200	25	1500	25	1000	25	250	25	250	25	250	25	250
26	1500	26	200	26	200	26	200	26	200	26	200	26	1500	26	1000	26	250	26	250	26	250	26	250
27	1500	27	200	27	200	27	200	27	200	27	200	27	1500	27	900	27	250	27	250	27	250	27	250
28	1250	28	200	28	200	28	200	28	200	28	200	28	1500	28	900	28	250	28	250	28	250	28	250
29	1000	29	200	29	200	29	200			29	200	29	1500	29	900	29	250	29	250	29	250	29	250
30	750	30	200	30	200	30	200			30	200	30	1500	30	900	30	250	30	250	30	250	30	250
31	500			31	200	31	200			31	200			31	900			31	250	31	250		
mo cfs	24000		6000		6200		7000		6400		6200		46100		38500		10900		7750		7750		7500
conv factor	1.9835																						
mo af	47604	0	11901	0	12298	0	13885	0	12694	0	12298	0	91439	0	76365	0	21620	0	15372	0	15372	0	14876

New Melones Stepped Release Plan Daily Hydrographs for Above Normal Year Types

OCT	CFS	NOV	CFS	DEC	CFS	JAN	CFS	FEB	CFS	MAR	CFS	APR	CFS	MAY	CFS	JUN	CFS	JUL	CFS	AUG	CFS	SEP	CFS
1	250	1	200	1	200	1	200	1	200	1	200	1	400	1	1500	1	900	1	250	1	250	1	250
2	250	2	200	2	200	2	200	2	200	2	200	2	750	2	1500	2	600	2	250	2	250	2	250
3	250	3	200	3	200	3	400	3	200	3	200	3	1000	3	1500	3	600	3	250	3	250	3	250
4	250	4	200	4	200	4	400	4	200	4	200	4	1250	4	1500	4	600	4	250	4	250	4	250
5	250	5	200	5	200	5	400	5	400	5	200	5	1500	5	1500	5	600	5	250	5	250	5	250
6	250	6	200	6	200	6	400	6	400	6	200	6	1700	6	1500	6	600	6	250	6	250	6	250
7	250	7	200	7	200	7	200	7	400	7	200	7	2000	7	1500	7	450	7	250	7	250	7	250
8	250	8	200	8	200	8	200	8	400	8	200	8	2000	8	1500	8	450	8	250	8	250	8	250
9	250	9	200	9	200	9	200	9	200	9	200	9	2000	9	1500	9	450	9	250	9	250	9	250
10	250	10	200	10	200	10	200	10	200	10	200	10	1500	10	1500	10	450	10	250	10	250	10	250
11	250	11	200	11	200	11	200	11	200	11	200	11	1500	11	1500	11	300	11	250	11	250	11	250
12	250	12	200	12	200	12	200	12	200	12	200	12	1500	12	1500	12	300	12	250	12	250	12	250
13	250	13	200	13	200	13	200	13	200	13	200	13	1500	13	1500	13	300	13	250	13	250	13	250
14	250	14	200	14	200	14	200	14	200	14	200	14	1500	14	1250	14	300	14	250	14	250	14	250
15	500	15	200	15	200	15	200	15	200	15	200	15	1500	15	1250	15	250	15	250	15	250	15	250
16	750	16	200	16	200	16	200	16	200	16	200	16	1500	16	1250	16	250	16	250	16	250	16	250
17	1000	17	200	17	200	17	200	17	200	17	200	17	1500	17	1250	17	250	17	250	17	250	17	250
18	1250	18	200	18	200	18	200	18	200	18	200	18	1500	18	1250	18	250	18	250	18	250	18	250
19	1500	19	200	19	200	19	200	19	200	19	200	19	2000	19	1250	19	250	19	250	19	250	19	250
20	1500	20	200	20	200	20	200	20	200	20	200	20	2000	20	1000	20	250	20	250	20	250	20	250
21	1500	21	200	21	200	21	200	21	200	21	200	21	2000	21	1000	21	250	21	250	21	250	21	250
22	1500	22	200	22	200	22	200	22	200	22	200	22	2000	22	1000	22	250	22	250	22	250	22	250
23	1500	23	200	23	200	23	200	23	200	23	200	23	1500	23	1000	23	250	23	250	23	250	23	250
24	1500	24	200	24	200	24	200	24	200	24	200	24	1500	24	1000	24	250	24	250	24	250	24	250
25	1500	25	200	25	200	25	200	25	200	25	200	25	1500	25	1000	25	250	25	250	25	250	25	250
26	1500	26	200	26	200	26	200	26	200	26	200	26	1500	26	1000	26	250	26	250	26	250	26	250
27	1500	27	200	27	200	27	200	27	200	27	200	27	1500	27	900	27	250	27	250	27	250	27	250
28	1250	28	200	28	200	28	200	28	200	28	200	28	1500	28	900	28	250	28	250	28	250	28	250
29	1000	29	200	29	200	29	200			29	200	29	1500	29	900	29	250	29	250	29	250	29	250
30	750	30	200	30	200	30	200			30	200	30	1500	30	900	30	250	30	250	30	250	30	250
31	500			31	200	31	200			31	200			31	900			31	250	31	250		
mo cfs	24000		6000		6200		7000		6400		6200		46100		38500		10900		7750		7750		7500
conv factor	1.9835																						
mo af	47604	0	11901	0	12298	0	13885	0	12694	0	12298	0	91439	0	76365	0	21620	0	15372	0	15372	0	14876

New Melones Stepped Release Plan Daily Hydrographs for Wet Year Types

OCT	CFS	NOV	CFS	DEC	CFS	JAN	CFS	FEB	CFS	MAR	CFS	APR	CFS	MAY	CFS	JUN	CFS	JUL	CFS	AUG	CFS	SEP	CFS
1	300	1	200	1	200	1	200	1	200	1	200	1	3000	1	3000	1	1200	1	300	1	300	1	300
2	300	2	200	2	200	2	200	2	200	2	350	2	3000	2	3000	2	1200	2	300	2	300	2	300
3	300	3	200	3	200	3	400	3	200	3	700	3	3000	3	3000	3	1200	3	300	3	300	3	300
4	300	4	200	4	200	4	400	4	200	4	1200	4	3000	4	3000	4	1200	4	300	4	300	4	300
5	300	5	200	5	200	5	400	5	400	5	1800	5	2300	5	2300	5	1200	5	300	5	300	5	300
6	300	6	200	6	200	6	400	6	400	6	2300	6	1500	6	1500	6	1200	6	300	6	300	6	300
7	300	7	200	7	200	7	400	7	400	7	3000	7	1200	7	1500	7	1200	7	300	7	300	7	300
8	300	8	200	8	200	8	200	8	400	8	3000	8	800	8	1500	8	1200	8	300	8	300	8	300
9	300	9	200	9	200	9	200	9	400	9	3000	9	800	9	1500	9	1000	9	300	9	300	9	300
10	300	10	200	10	200	10	200	10	200	10	3000	10	800	10	1500	10	1000	10	300	10	300	10	300
11	300	11	200	11	200	11	200	11	200	11	3000	11	800	11	1500	11	1000	11	300	11	300	11	300
12	300	12	200	12	200	12	200	12	200	12	3000	12	800	12	1500	12	1000	12	300	12	300	12	300
13	300	13	200	13	200	13	200	13	200	13	1200	13	800	13	1500	13	1000	13	300	13	300	13	300
14	300	14	200	14	200	14	200	14	200	14	800	14	800	14	1500	14	1000	14	300	14	300	14	300
15	500	15	200	15	200	15	200	15	200	15	800	15	800	15	1200	15	1000	15	300	15	300	15	300
16	750	16	200	16	200	16	200	16	200	16	800	16	800	16	1200	16	1000	16	300	16	300	16	300
17	1000	17	200	17	200	17	200	17	200	17	800	17	800	17	1200	17	1000	17	300	17	300	17	300
18	1250	18	200	18	200	18	200	18	200	18	800	18	800	18	1200	18	1000	18	300	18	300	18	300
19	1500	19	200	19	200	19	200	19	200	19	800	19	800	19	1200	19	1000	19	300	19	300	19	300
20	1500	20	200	20	200	20	200	20	200	20	800	20	800	20	1200	20	1000	20	300	20	300	20	300
21	1500	21	200	21	200	21	200	21	200	21	800	21	800	21	1200	21	1000	21	300	21	300	21	300
22	1500	22	200	22	200	22	200	22	200	22	800	22	800	22	1200	22	1000	22	300	22	300	22	300
23	1500	23	200	23	200	23	200	23	200	23	800	23	800	23	1200	23	1000	23	300	23	300	23	300
24	1500	24	200	24	200	24	200	24	200	24	800	24	800	24	1200	24	750	24	300	24	300	24	300
25	1500	25	200	25	200	25	200	25	200	25	800	25	800	25	1200	25	750	25	300	25	300	25	300
26	1500	26	200	26	200	26	200	26	200	26	800	26	800	26	1200	26	500	26	300	26	300	26	300
27	1500	27	200	27	200	27	200	27	200	27	1200	27	1500	27	1200	27	500	27	300	27	300	27	300
28	1250	28	200	28	200	28	200	28	200	28	1500	28	2300	28	1200	28	500	28	300	28	300	28	300
29	1000	29	200	29	200	29	200			29	2300	29	3000	29	1200	29	300	29	300	29	300	29	300
30	750	30	200	30	200	30	200			30	3000	30	3000	30	1200	30	300	30	300	30	300	30	300
31	500			31	200	31	200			31	3000			31	1200			31	300	31	300		
mo cfs	24700		6000		6200		7200		6600		47150		42000		48200		28200		9300		9300		9000
conv factor	1.9835																						
mo af	48992	0	11901	0	12298	0	14281	0	13091	0	93522	0	83307	0	95605	0	55935	0	18447	0	18447	0	17852
yr af	483676.5																						

Stanislaus Plan attached

United States Department of the Interior

BUREAU OF RECLAMATION
Central Valley Operations Office
3310 El Camino Avenue, Suite 300
Sacramento, California 95821

IN REPLY REFER TO
CVO-400
WTR-4.10

MAY 31 1997

To: Stanislaus River Basin Stakeholders
Other Interested Parties
(See Attached List)

From: Lowell F. Ploss
Operations Manager, Central Valley Operations

Subject: Transmittal of New Melones Interim Plan of Operation

Attached is the interim plan of operation for New Melones Reservoir. The interim plan was developed as a joint effort between The Bureau of Reclamation (Reclamation) and the Fish and Wildlife Service (FWS) in conjunction with the Stanislaus River Basin Stakeholders. This process began in 1995 with a goal to develop a management plan with clear operating criteria for available water supplies in the Stanislaus Basin on a long-term basis. In 1996, that effort was continued with a group of Stanislaus stakeholders; however, the focus shifted to an interim plan for 1997 and 1998 operations. During a meeting of the stakeholders on January 29, 1997, a final interim plan of operation for New Melones Reservoir was agreed to in concept. The details of this plan are attached. Also attached are examples of operations under the 50 percent probability of exceedance (most probable) and 90 percent probability of exceedance (90 percent chance of having increased inflows) hydrologic conditions which include Water Years 1997 and 1998. This plan is contingent upon all elements as described in this document. It was also decided at the January 29, 1997, meeting that between now and late 1998 additional work on a long-term plan would continue.

If you have any questions regarding this interim plan, please call Dave Read (Reclamation) at 979-2684 or Roger Guinee (FWS) at 979-2780.

Lowell F. Ploss

Attachments

cc: Fish & Wildlife: Maria Mace
Joel Medlin
Dick Jewell

Annual Water Supply Categories

Table 1 shows the five annual water supply categories to be used in the interim plan of operation and the corresponding ranges of February end of month storage plus March through September forecast of inflow to New Melones Reservoir.

Table 1

Annual Water Supply Category	Mar.-Sept. Forecast plus Feb. End of Month Storage (TAF)	
	From	To
Low	0	1,400
Medium-Low	1,400	2,000
Medium	2,000	2,500
Medium-High	2,500	3,000
High	3,000	6,000

Water Distribution

Table 2 shows the distributions of annual (March through February) water supplies measured at Goodwin Dam, based on Table 1 categories, for fishery, Vernalis water quality, Bay-Delta, and Central Valley Project (CVP) contractors. The annual deliveries for these purposes will be determined by interpolating user allocation against the corresponding Table 1 hydrologic category. Allocations to Oakdale and South San Joaquin Irrigation Districts will be pursuant to their 1988 agreement with Bureau of Reclamation (Reclamation). It was agreed that Reclamation and Fish and Wildlife Service (Service) will acquire water from Oakdale and South San Joaquin Irrigation Districts (up to 50 TAF per year during 1997 and 1998) for fishery purposes. The release patterns for fishery purposes will be developed by Service and Reclamation in cooperation with the California Department of Fish and Game (DFG) and in consultation with interested agencies/parties. As part of the interim plan, it was negotiated that CVP contractors will receive 50 TAF per year during 1997 and 1998; therefore, this interpolation procedure will not apply to them for the interim period. The allocation in Table 2 for CVP Contractors is presented for information only. It should be noted that the low water supply category has been deleted from Table 2, because it is not anticipated that it will be reached during 1997 and 1998.

Table 2
(1,000 acre-feet)
(measured at Goodwin)

New Melones Storage plus Inflow		Fishery		Vernalis Water Quality		Bay-Delta		CVP Contractors	
From	To	From	To	From	To	From	To	From	To
1,400	2,000	98	125	70	80	0	0	0	0
2,000	2,500	125	345	80	175	0	0	0	59
2,500	3,000	345	467	175	250	75	75	90	90
3,000	6,000	467	467	250	250	75	75	90	90

Preliminary water supply allocations will be announced by February 15 of each year, with updates by the 15th of each subsequent month through June. Although an initial fishery release pattern has been developed by the Service in consultation with the DFG, Reclamation will continue to request annual schedules from DFG pursuant to the June 1987 agreement between Reclamation and DFG. The Service will consult with DFG to schedule additional quantities allocated pursuant to this plan. The terms of the 1987 agreement will continue to be met during 1997 and 1998.

Stanislaus River Releases

The derived release patterns for each purpose (from Goodwin Dam to the Stanislaus River) must be consistent with Table 2. All river releases up to the amount of the fishery pattern will be included in the annual fishery allocation. All river releases up to the amount of the Bay-Delta pattern excluding fishery will be included in the annual Bay-Delta allocation. All river releases up to the amount of the Vernalis water quality requirement excluding fishery and Bay-Delta will be included in the annual Vernalis water quality allocation. Water quality criteria as stated on pages 17 and 19 of the May 1995, Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary will be met up to the maximum indicated allocation. If necessary, additional Goodwin river releases will be made to meet the Ripon dissolved oxygen requirement. Additional releases for fishery purposes (temporary water acquisition during 1997 and 1998) will be made on top of all other releases. Releases from Goodwin Dam to the Stanislaus River (except for flood control) shall not exceed 1,500 ft^3/s.

It should be noted that Table 2 yields quantities that are additive. However, Table 2 does not show the total benefit to fishery, Vernalis water quality, and Bay-Delta. Releases for these purposes yield multiple benefits. For example, a release to meet fishery may also benefit Bay-Delta and/or Vernalis water quality even though it is included only in the fishery allocation.

During 1997 and 1998, it is anticipated that all objectives will be met according to the understanding that was reached in the Stanislaus Stakeholders meeting, and pursuant to Reclamation's April 4, 1997, letter to the Service and the Service's April 8, 1997, response (both attached). However, should extremely dry conditions or some unforeseen circumstance occur, Reclamation and the Service will convene a meeting with the Stakeholders to seek a solution.

Lowell F. Ploss
Operations Manager, Central
Valley Operations Office
Bureau of Reclamation

Wayne White
Field Supervisor
Fish and Wildlife Service

APPENDIX 2-E

STANISLAUS RIVER MINIMUM FLOWS FOR FISH NEEDS

Introduction:

The following tables indicate the specific minimum flows needed to achieve the minimum flow schedule as specified in Action III.1.3. The flow is based on releases measured at Goodwin Dam.

Stanislaus River Minimum Fish Flow Schedule
Water Year Type: Critically Dry

OCT	CFS	NOV	CFS	DEC	CFS	JAN	CFS	FEB	CFS	MAR	CFS
1	200	1	200	1	200	1	200	1	200	1	200
2	200	2	200	2	200	2	200	2	200	2	200
3	200	3	200	3	200	3	400	3	200	3	200
4	200	4	200	4	200	4	400	4	200	4	200
5	200	5	200	5	200	5	200	5	400	5	200
6	200	6	200	6	200	6	200	6	400	6	200
7	200	7	200	7	200	7	200	7	200	7	200
8	200	8	200	8	200	8	200	8	200	8	200
9	200	9	200	9	200	9	200	9	200	9	200
10	200	10	200	10	200	10	200	10	200	10	200
11	200	11	200	11	200	11	200	11	200	11	200
12	200	12	200	12	200	12	200	12	200	12	200
13	200	13	200	13	200	13	200	13	200	13	200
14	200	14	200	14	200	14	200	14	200	14	200
15	500	15	200	15	200	15	200	15	200	15	200
16	750	16	200	16	200	16	200	16	200	16	200
17	1000	17	200	17	200	17	200	17	200	17	200
18	1250	18	200	18	200	18	200	18	200	18	200
19	1250	19	200	19	200	19	200	19	200	19	200
20	1250	20	200	20	200	20	200	20	200	20	200
21	1250	21	200	21	200	21	200	21	200	21	200
22	1250	22	200	22	200	22	200	22	200	22	200
23	1250	23	200	23	200	23	200	23	200	23	200
24	1250	24	200	24	200	24	200	24	200	24	200
25	1250	25	200	25	200	25	200	25	200	25	200
26	1000	26	200	26	200	26	200	26	200	26	200
27	750	27	200	27	200	27	200	27	200	27	200
28	500	28	200	28	200	28	200	28	200	28	200
29	200	29	200	29	200	29	200			29	200
30	200	30	200	30	200	30	200			30	200
31	200			31	200	31	200			31	200

APR	CFS	MAY	CFS	JUN	CFS	JUL	CFS	AUG	CFS	SEP	CFS
1	200	1	725	1	150	1	150	1	150	1	150
2	200	2	725	2	150	2	150	2	150	2	150
3	200	3	725	3	150	3	150	3	150	3	150
4	200	4	725	4	150	4	150	4	150	4	150
5	200	5	725	5	150	5	150	5	150	5	150
6	200	6	725	6	150	6	150	6	150	6	150
7	200	7	725	7	150	7	150	7	150	7	150
8	200	8	725	8	150	8	150	8	150	8	150
9	200	9	725	9	150	9	150	9	150	9	150
10	200	10	725	10	150	10	150	10	150	10	150
11	200	11	725	11	150	11	150	11	150	11	150
12	200	12	725	12	150	12	150	12	150	12	150
13	200	13	550	13	150	13	150	13	150	13	150
14	200	14	450	14	150	14	150	14	150	14	150
15	350	15	300	15	150	15	150	15	150	15	150
16	500	16	150	16	150	16	150	16	150	16	150
17	725	17	150	17	150	17	150	17	150	17	150
18	725	18	150	18	150	18	150	18	150	18	150
19	725	19	150	19	150	19	150	19	150	19	150
20	725	20	150	20	150	20	150	20	150	20	150
21	725	21	150	21	150	21	150	21	150	21	150
22	725	22	150	22	150	22	150	22	150	22	150
23	725	23	150	23	150	23	150	23	150	23	150
24	725	24	150	24	150	24	150	24	150	24	150
25	725	25	150	25	150	25	150	25	150	25	150
26	725	26	150	26	150	26	150	26	150	26	150
27	725	27	150	27	150	27	150	27	150	27	150
28	725	28	150	28	150	28	150	28	150	28	150
29	725	29	150	29	150	29	150	29	150	29	150
30	725	30	150	30	150	30	150	30	150	30	150
		31	150			31	150	31	150		

Table 1of 5

Stanislaus River Minimum Fish Flow Schedule
Water Year Type: Dry

OCT	CFS	NOV	CFS	DEC	CFS	JAN	CFS	FEB	CFS	MAR	CFS
1	200	1	200	1	200	1	200	1	200	1	200
2	200	2	200	2	200	2	200	2	200	2	200
3	200	3	200	3	200	3	400	3	200	3	200
4	200	4	200	4	200	4	400	4	200	4	200
5	200	5	200	5	200	5	400	5	400	5	200
6	200	6	200	6	200	6	200	6	400	6	200
7	200	7	200	7	200	7	200	7	400	7	200
8	200	8	200	8	200	8	200	8	200	8	200
9	200	9	200	9	200	9	200	9	200	9	200
10	200	10	200	10	200	10	200	10	200	10	200
11	200	11	200	11	200	11	200	11	200	11	200
12	200	12	200	12	200	12	200	12	200	12	200
13	200	13	200	13	200	13	200	13	200	13	200
14	200	14	200	14	200	14	200	14	200	14	200
15	500	15	200	15	200	15	200	15	200	15	200
16	750	16	200	16	200	16	200	16	200	16	200
17	1000	17	200	17	200	17	200	17	200	17	200
18	1250	18	200	18	200	18	200	18	200	18	200
19	1250	19	200	19	200	19	200	19	200	19	200
20	1250	20	200	20	200	20	200	20	200	20	200
21	1500	21	200	21	200	21	200	21	200	21	200
22	1500	22	200	22	200	22	200	22	200	22	200
23	1500	23	200	23	200	23	200	23	200	23	200
24	1250	24	200	24	200	24	200	24	200	24	200
25	1250	25	200	25	200	25	200	25	200	25	200
26	1250	26	200	26	200	26	200	26	200	26	200
27	1000	27	200	27	200	27	200	27	200	27	200
28	750	28	200	28	200	28	200	28	200	28	200
29	500	29	200	29	200	29	200			29	200
30	200	30	200	30	200	30	200			30	200
31	200			31	200	31	200			31	200

APR	CFS	MAY	CFS	JUN	CFS	JUL	CFS	AUG	CFS	SEP	CFS
1	200	1	1000	1	200	1	200	1	200	1	200
2	200	2	1000	2	200	2	200	2	200	2	200
3	200	3	1000	3	200	3	200	3	200	3	200
4	200	4	1000	4	200	4	200	4	200	4	200
5	200	5	1000	5	200	5	200	5	200	5	200
6	200	6	1000	6	200	6	200	6	200	6	200
7	200	7	1000	7	200	7	200	7	200	7	200
8	350	8	1000	8	200	8	200	8	200	8	200
9	500	9	1000	9	200	9	200	9	200	9	200
10	750	10	1000	10	200	10	200	10	200	10	200
11	1000	11	1000	11	200	11	200	11	200	11	200
12	1000	12	1000	12	200	12	200	12	200	12	200
13	1000	13	1000	13	200	13	200	13	200	13	200
14	1000	14	1000	14	200	14	200	14	200	14	200
15	1000	15	1000	15	200	15	200	15	200	15	200
16	1000	16	800	16	200	16	200	16	200	16	200
17	1000	17	600	17	200	17	200	17	200	17	200
18	1000	18	450	18	200	18	200	18	200	18	200
19	1000	19	300	19	200	19	200	19	200	19	200
20	1000	20	200	20	200	20	200	20	200	20	200
21	1000	21	200	21	200	21	200	21	200	21	200
22	1000	22	200	22	200	22	200	22	200	22	200
23	1000	23	200	23	200	23	200	23	200	23	200
24	1000	24	200	24	200	24	200	24	200	24	200
25	1000	25	200	25	200	25	200	25	200	25	200
26	1000	26	200	26	200	26	200	26	200	26	200
27	1000	27	200	27	200	27	200	27	200	27	200
28	1000	28	200	28	200	28	200	28	200	28	200
29	1000	29	200	29	200	29	200	29	200	29	200
30	1000	30	200	30	200	30	200	30	200	30	200
		31	200			31	200	31	200		

Stanislaus River Minimum Fish Flow Schedule
Water Year Type: Below Normal

OCT	CFS	NOV	CFS	DEC	CFS	JAN	CFS	FEB	CFS	MAR	CFS
1	250	1	200	1	200	1	200	1	200	1	200
2	250	2	200	2	200	2	200	2	200	2	200
3	250	3	200	3	200	3	400	3	200	3	200
4	250	4	200	4	200	4	400	4	200	4	200
5	250	5	200	5	200	5	400	5	400	5	200
6	250	6	200	6	200	6	400	6	400	6	200
7	250	7	200	7	200	7	200	7	400	7	200
8	250	8	200	8	200	8	200	8	400	8	200
9	250	9	200	9	200	9	200	9	200	9	200
10	250	10	200	10	200	10	200	10	200	10	200
11	250	11	200	11	200	11	200	11	200	11	200
12	250	12	200	12	200	12	200	12	200	12	200
13	250	13	200	13	200	13	200	13	200	13	200
14	250	14	200	14	200	14	200	14	200	14	200
15	500	15	200	15	200	15	200	15	200	15	200
16	750	16	200	16	200	16	200	16	200	16	200
17	1000	17	200	17	200	17	200	17	200	17	200
18	1250	18	200	18	200	18	200	18	200	18	200
19	1500	19	200	19	200	19	200	19	200	19	200
20	1500	20	200	20	200	20	200	20	200	20	200
21	1500	21	200	21	200	21	200	21	200	21	200
22	1500	22	200	22	200	22	200	22	200	22	200
23	1500	23	200	23	200	23	200	23	200	23	200
24	1500	24	200	24	200	24	200	24	200	24	200
25	1500	25	200	25	200	25	200	25	200	25	200
26	1500	26	200	26	200	26	200	26	200	26	200
27	1500	27	200	27	200	27	200	27	200	27	200
28	1250	28	200	28	200	28	200	28	200	28	200
29	1000	29	200	29	200	29	200			29	200
30	750	30	200	30	200	30	200			30	200
31	500			31	200	31	200			31	200

APR	CFS	MAY	CFS	JUN	CFS	JUL	CFS	AUG	CFS	SEP	CFS
1	400	1	1500	1	900	1	250	1	250	1	250
2	750	2	1500	2	600	2	250	2	250	2	250
3	1000	3	1500	3	600	3	250	3	250	3	250
4	1250	4	1500	4	600	4	250	4	250	4	250
5	1500	5	1500	5	600	5	250	5	250	5	250
6	1700	6	1500	6	600	6	250	6	250	6	250
7	2000	7	1500	7	450	7	250	7	250	7	250
8	2000	8	1500	8	450	8	250	8	250	8	250
9	2000	9	1500	9	450	9	250	9	250	9	250
10	2000	10	1500	10	450	10	250	10	250	10	250
11	1500	11	1500	11	300	11	250	11	250	11	250
12	1500	12	1500	12	300	12	250	12	250	12	250
13	1500	13	1500	13	300	13	250	13	250	13	250
14	1500	14	1250	14	300	14	250	14	250	14	250
15	1500	15	1250	15	250	15	250	15	250	15	250
16	1500	16	1250	16	250	16	250	16	250	16	250
17	1500	17	1250	17	250	17	250	17	250	17	250
18	1500	18	1250	18	250	18	250	18	250	18	250
19	2000	19	1250	19	250	19	250	19	250	19	250
20	2000	20	1000	20	250	20	250	20	250	20	250
21	2000	21	1000	21	250	21	250	21	250	21	250
22	2000	22	1000	22	250	22	250	22	250	22	250
23	1500	23	1000	23	250	23	250	23	250	23	250
24	1500	24	1000	24	250	24	250	24	250	24	250
25	1500	25	1000	25	250	25	250	25	250	25	250
26	1500	26	1000	26	250	26	250	26	250	26	250
27	1500	27	900	27	250	27	250	27	250	27	250
28	1500	28	900	28	250	28	250	28	250	28	250
29	1500	29	900	29	250	29	250	29	250	29	250
30	1500	30	900	30	250	30	250	30	250	30	250
		31	900			31	250	31	250		

Table 3 of 5

Stanislaus River Minimum Fish Flow Schedule Water Year Type: Above Normal											
OCT	CFS	NOV	CFS	DEC	CFS	JAN	CFS	FEB	CFS	MAR	CFS
1	300	1	200	1	200	1	200	1	200	1	200
2	300	2	200	2	200	2	200	2	200	2	350
3	300	3	200	3	200	3	400	3	200	3	700
4	300	4	200	4	200	4	400	4	200	4	1200
5	300	5	200	5	200	5	400	5	400	5	1800
6	300	6	200	6	200	6	400	6	400	6	2300
7	300	7	200	7	200	7	400	7	400	7	3000
8	300	8	200	8	200	8	200	8	400	8	3000
9	300	9	200	9	200	9	200	9	400	9	3000
10	300	10	200	10	200	10	200	10	200	10	3000
11	300	11	200	11	200	11	200	11	200	11	3000
12	300	12	200	12	200	12	200	12	200	12	3000
13	300	13	200	13	200	13	200	13	200	13	1200
14	300	14	200	14	200	14	200	14	200	14	800
15	500	15	200	15	200	15	200	15	200	15	800
16	750	16	200	16	200	16	200	16	200	16	800
17	1000	17	200	17	200	17	200	17	200	17	800
18	1250	18	200	18	200	18	200	18	200	18	800
19	1500	19	200	19	200	19	200	19	200	19	800
20	1500	20	200	20	200	20	200	20	200	20	800
21	1500	21	200	21	200	21	200	21	200	21	800
22	1500	22	200	22	200	22	200	22	200	22	800
23	1500	23	200	23	200	23	200	23	200	23	800
24	1500	24	200	24	200	24	200	24	200	24	800
25	1500	25	200	25	200	25	200	25	200	25	800
26	1500	26	200	26	200	26	200	26	200	26	800
27	1500	27	200	27	200	27	200	27	200	27	1200
28	1250	28	200	28	200	28	200	28	200	28	1500
29	1000	29	200	29	200	29	200			29	2300
30	750	30	200	30	200	30	200			30	3000
31	500			31	200	31	200			31	3000

APR	CFS	MAY	CFS	JUN	CFS	JUL	CFS	AUG	CFS	SEP	CFS
1	3000	1	3000	1	1200	1	300	1	300	1	300
2	3000	2	3000	2	1200	2	300	2	300	2	300
3	3000	3	3000	3	1200	3	300	3	300	3	300
4	3000	4	3000	4	1200	4	300	4	300	4	300
5	2300	5	2300	5	1200	5	300	5	300	5	300
6	1500	6	1500	6	1200	6	300	6	300	6	300
7	1200	7	1500	7	1200	7	300	7	300	7	300
8	800	8	1500	8	1200	8	300	8	300	8	300
9	800	9	1500	9	1000	9	300	9	300	9	300
10	800	10	1500	10	1000	10	300	10	300	10	300
11	800	11	1500	11	1000	11	300	11	300	11	300
12	800	12	1500	12	1000	12	300	12	300	12	300
13	800	13	1500	13	1000	13	300	13	300	13	300
14	800	14	1500	14	1000	14	300	14	300	14	300
15	800	15	1200	15	1000	15	300	15	300	15	300
16	800	16	1200	16	1000	16	300	16	300	16	300
17	800	17	1200	17	1000	17	300	17	300	17	300
18	800	18	1200	18	1000	18	300	18	300	18	300
19	800	19	1200	19	1000	19	300	19	300	19	300
20	800	20	1200	20	1000	20	300	20	300	20	300
21	800	21	1200	21	1000	21	300	21	300	21	300
22	800	22	1200	22	1000	22	300	22	300	22	300
23	800	23	1200	23	1000	23	300	23	300	23	300
24	800	24	1200	24	750	24	300	24	300	24	300
25	800	25	1200	25	750	25	300	25	300	25	300
26	800	26	1200	26	500	26	300	26	300	26	300
27	1500	27	1200	27	500	27	300	27	300	27	300
28	2300	28	1200	28	500	28	300	28	300	28	300
29	3000	29	1200	29	300	29	300	29	300	29	300
30	3000	30	1200	30	300	30	300	30	300	30	300
		31	1200			31	300	31	300		

Table 4 of 5

Stanislaus River Minimum Fish Flow Schedule
Water Year Type: Wet

OCT	CFS	NOV	CFS	DEC	CFS	JAN	CFS	FEB	CFS	MAR	CFS
1	400	1	300	1	300	1	300	1	300	1	600
2	400	2	300	2	300	2	300	2	300	2	1200
3	400	3	300	3	300	3	600	3	300	3	2400
4	400	4	300	4	300	4	600	4	300	4	5000
5	400	5	300	5	300	5	600	5	600	5	5000
6	400	6	300	6	300	6	600	6	600	6	5000
7	400	7	300	7	300	7	600	7	600	7	5000
8	400	8	300	8	300	8	600	8	600	8	4500
9	400	9	300	9	300	9	300	9	600	9	2400
10	400	10	300	10	300	10	300	10	600	10	1200
11	400	11	300	11	300	11	300	11	300	11	800
12	400	12	300	12	300	12	300	12	300	12	800
13	400	13	300	13	300	13	300	13	300	13	800
14	400	14	300	14	300	14	300	14	300	14	800
15	500	15	300	15	300	15	300	15	300	15	800
16	750	16	300	16	300	16	300	16	300	16	800
17	1000	17	300	17	300	17	300	17	300	17	800
18	1250	18	300	18	300	18	300	18	300	18	800
19	1500	19	300	19	300	19	300	19	300	19	800
20	1500	20	300	20	300	20	300	20	300	20	1200
21	1500	21	300	21	300	21	300	21	300	21	1200
22	1500	22	300	22	300	22	300	22	300	22	1200
23	1500	23	300	23	300	23	300	23	300	23	1200
24	1500	24	300	24	300	24	300	24	300	24	1200
25	1500	25	300	25	300	25	300	25	300	25	800
26	1500	26	300	26	300	26	300	26	300	26	800
27	1500	27	300	27	300	27	300	27	300	27	800
28	1250	28	300	28	300	28	300	28	300	28	800
29	1000	29	300	29	300	29	300			29	800
30	750	30	300	30	300	30	300			30	800
31	500			31	300	31	300			31	800

APR	CFS	MAY	CFS	JUN	CFS	JUL	CFS	AUG	CFS	SEP	CFS
1	800	1	4800	1	1200	1	800	1	400	1	400
2	800	2	4800	2	1200	2	500	2	400	2	400
3	1200	3	4500	3	1200	3	500	3	400	3	400
4	2400	4	4500	4	1200	4	500	4	400	4	400
5	5000	5	4500	5	1200	5	500	5	400	5	400
6	5000	6	2400	6	1200	6	500	6	400	6	400
7	5000	7	1200	7	1200	7	400	7	400	7	400
8	4500	8	800	8	1200	8	400	8	400	8	400
9	3500	9	800	9	1200	9	400	9	400	9	400
10	2400	10	800	10	1200	10	400	10	400	10	400
11	1200	11	800	11	1200	11	400	11	400	11	400
12	800	12	800	12	1200	12	400	12	400	12	400
13	800	13	800	13	1200	13	400	13	400	13	400
14	800	14	800	14	1200	14	400	14	400	14	400
15	800	15	800	15	1200	15	400	15	400	15	400
16	800	16	800	16	1200	16	400	16	400	16	400
17	800	17	800	17	1200	17	400	17	400	17	400
18	800	18	1500	18	1200	18	400	18	400	18	400
19	800	19	1500	19	1000	19	400	19	400	19	400
20	800	20	1500	20	1000	20	400	20	400	20	400
21	800	21	2500	21	1000	21	400	21	400	21	400
22	800	22	2500	22	1000	22	400	22	400	22	400
23	800	23	2500	23	1000	23	400	23	400	23	400
24	800	24	2500	24	1000	24	400	24	400	24	400
25	800	25	2500	25	1000	25	400	25	400	25	400
26	800	26	1500	26	1000	26	400	26	400	26	400
27	800	27	1500	27	1000	27	400	27	400	27	400
28	800	28	1500	28	800	28	400	28	400	28	400
29	1200	29	1500	29	800	29	400	29	400	29	400
30	2400	30	1500	30	800	30	400	30	400	30	400
		31	1500			31	400	31	400		

Table 5 of 5