

Appendix A

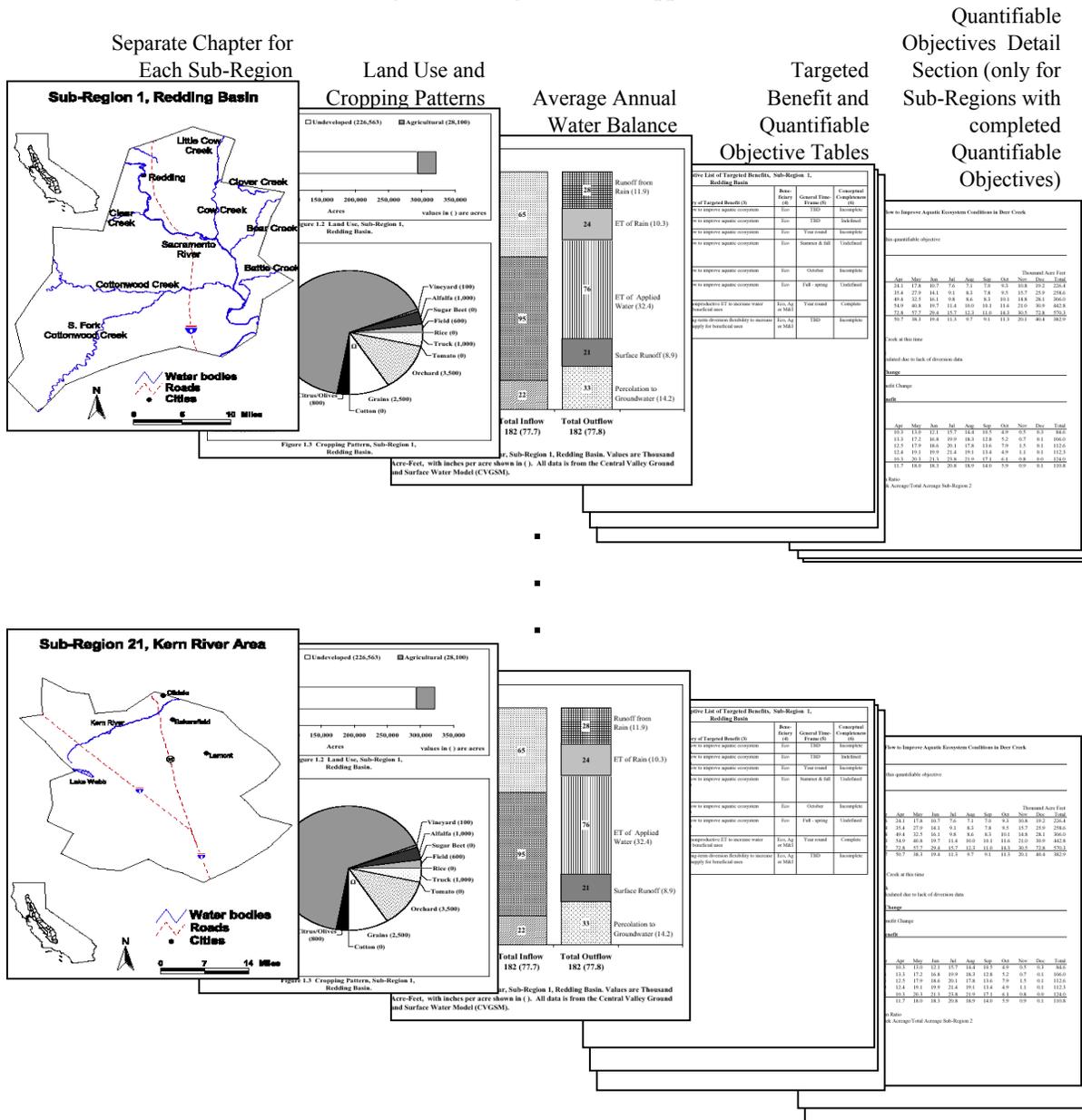
Complete List of Quantifiable Objectives by Sub-Region

Appendix A contains a list of the completed and the potential Quantifiable Objectives (QOs). To-date, 196 potential QOs have been identified. Of these, approximately 50 have been completed. WUE proposals that incorporate completed QOs will be given extra weight in the selection process.

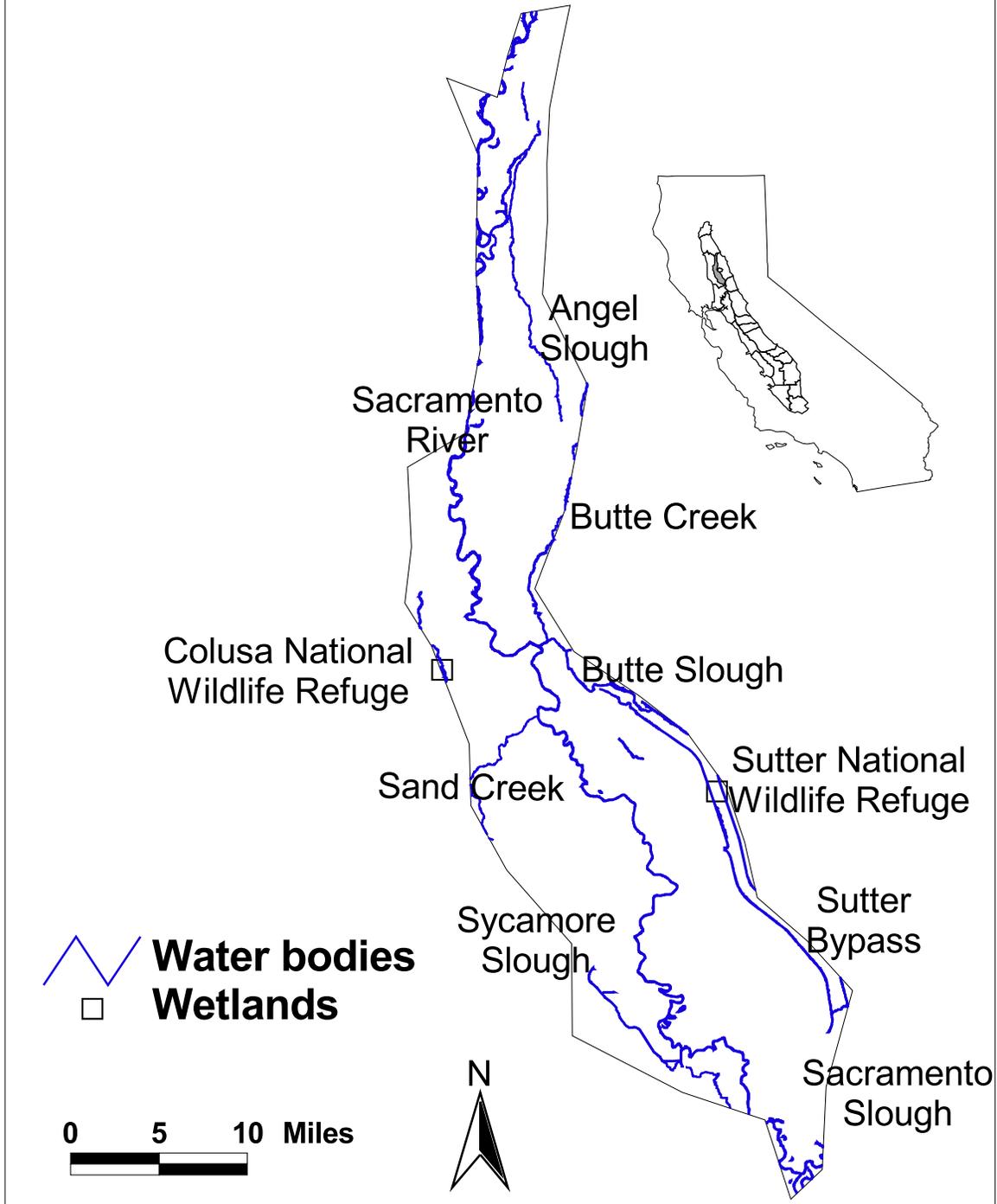
Readily available data does not exist to allow completion of the remaining QOs. However, approximately 45 of the uncompleted QOs have been identified as high priority, and proposals that are linked to these priority outcomes (or Targeted Benefits) will also receive extra weight in the selections (although not as much weight as those that incorporate completed QOs).

Appendix A is organized into 21 chapters that correspond to the 21 Sub-Regions defined in the QO analysis. Each chapter contains background information and details as illustrated in Figure A.I.

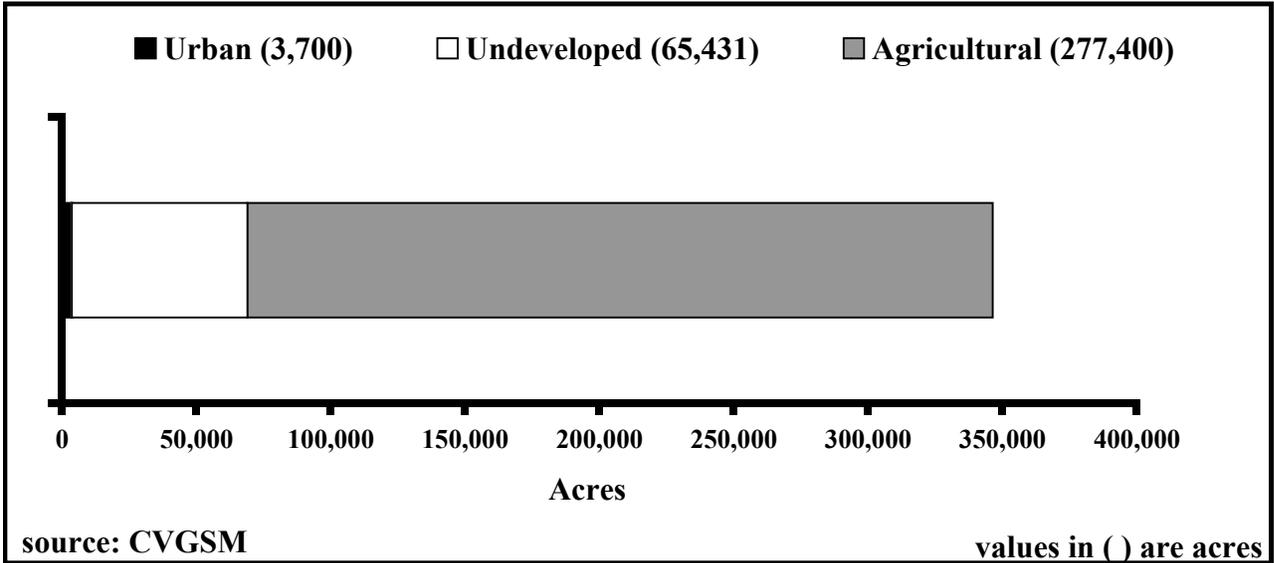
Figure A.I. Organization of Appendix A



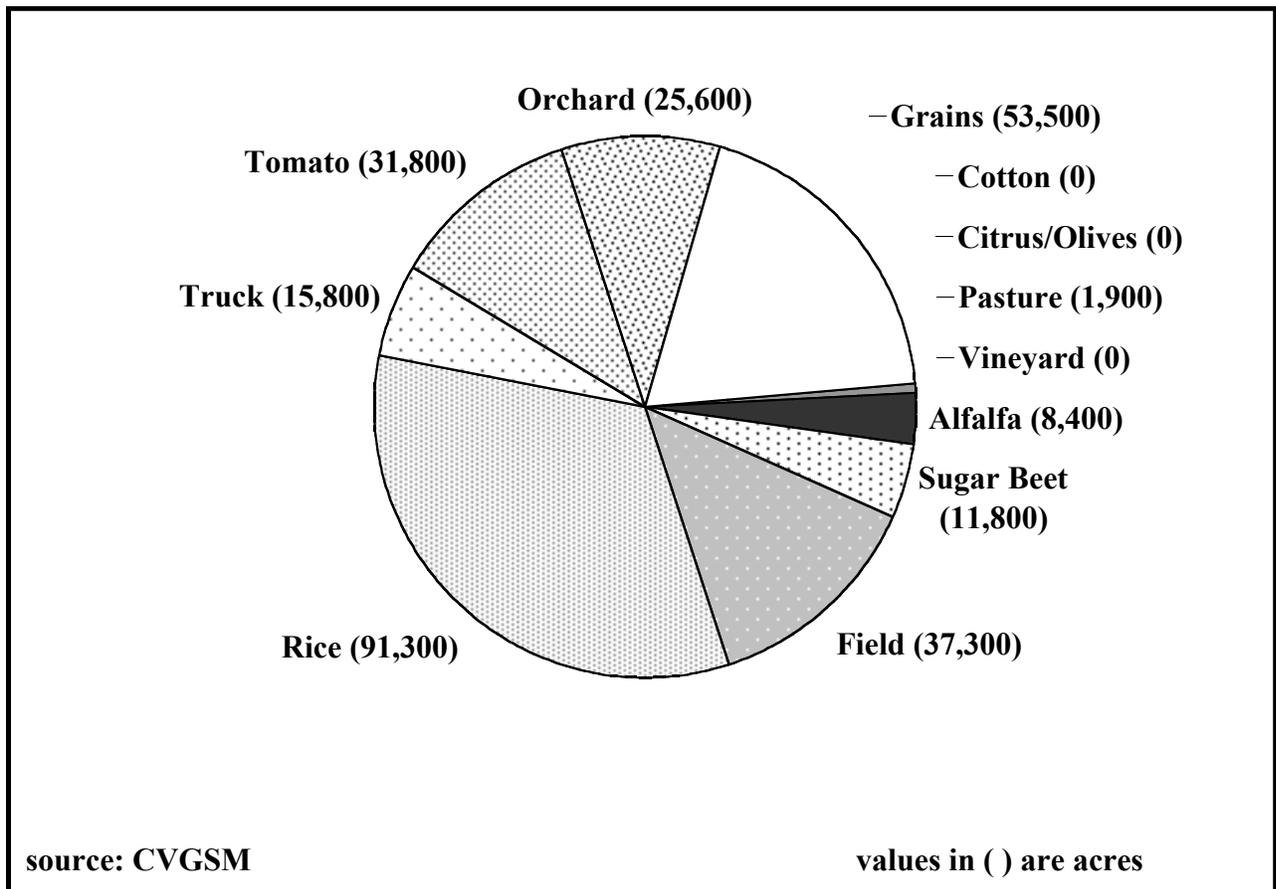
Sub-Region 4, Mid-Sacramento Valley, Chico Landing to Knights Landing



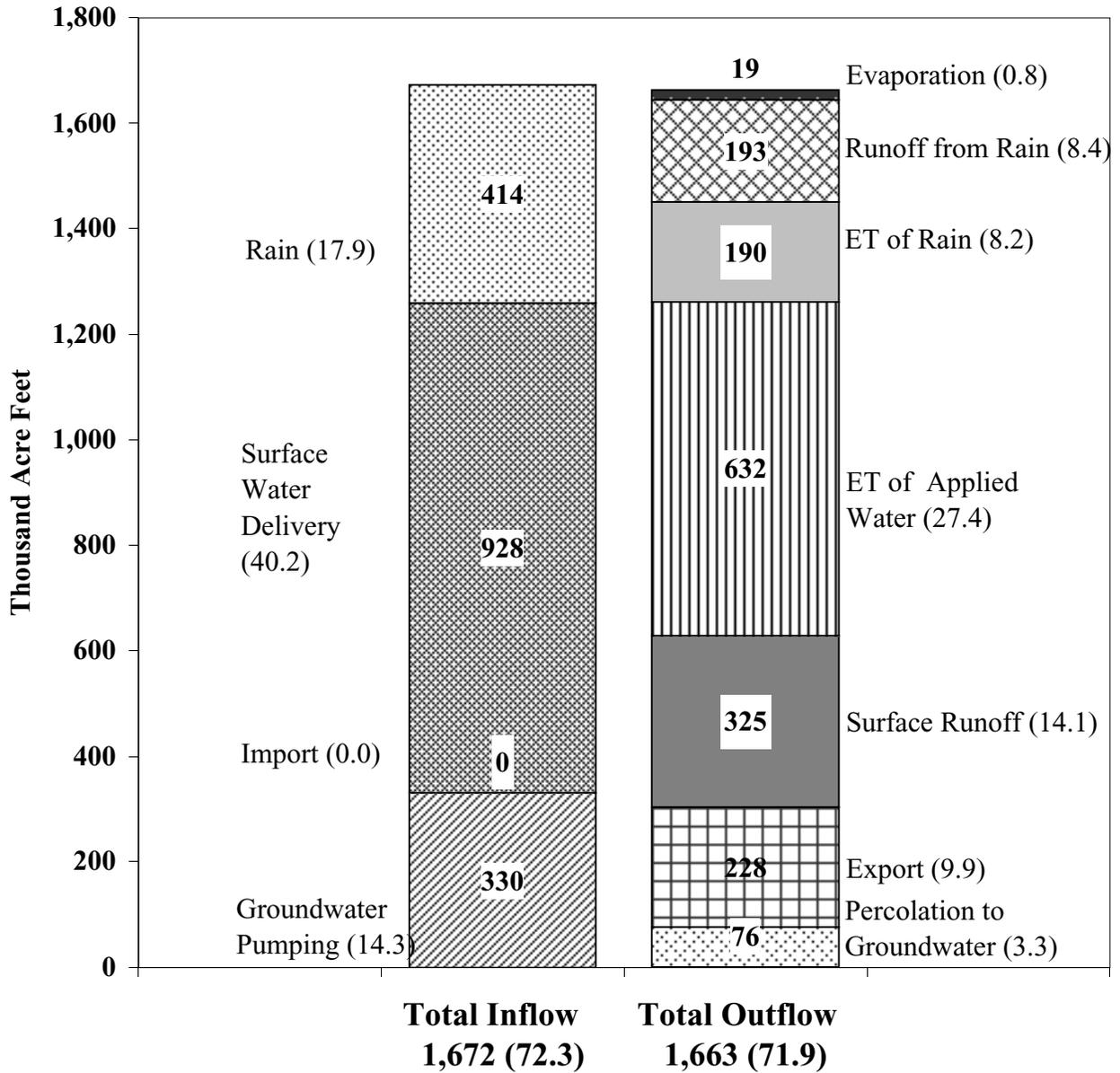
**Figure A.4.2 Land Use, Sub-Region 4,
Mid-Sacramento Valley, Chico Landing to Knights Landing.**



**Figure A.4.3 Cropping Pattern, Sub-Region 4,
Mid-Sacramento Valley, Chico Landing to Knights Landing.**



Sub-Region 4 Water Balance



Farm Water Balance, Average Year, Sub-Region 4, Mid-Sacramento Valley, Chico Landing to Knights Landing. Values are Thousand Acre-Feet, with inches per acre shown in (.). All data is from the Central Valley Ground and Surface Water Model (CVGSM).

**Table A.4.1. Descriptive List of Targeted Benefits, Sub-Region 4,
Mid-Sacramento Valley, Chico Landing to Knight's Landing**

TB # (1) [duplicate]	Location (2)	Category of Targeted Benefit (3)	Bene- ficiary (4)	General Time- Frame (5)	Conceptual Completeness (6)
30 [6, 13, 20, 57, 75]	Sacramento River below Keswick	Flow: Provide flow to improve aquatic ecosystem conditions	Eco	Fall - spring	Undefined
31 [15, 23]	Sacramento River	Quality: Reduce pesticides to enhance and maintain beneficial uses of water	Eco or M&I	TBD	Complete
83	Sacramento Slough	Quality: Reduce pesticides to enhance and maintain beneficial uses of water	Eco or M&I	TBD	Complete
33	All affected lands	Quantity: Decrease nonproductive ET to increase water supply for beneficial uses	Eco, Ag or M&I	Year round	Complete
34	All suitable lands	Quantity: Provide long-term diversion flexibility to increase the water supply for beneficial uses	Eco, Ag or M&I	TBD	Incomplete
35 [27, 48, 54, 65, 73]	Wetlands	Quantity: Provide long-term diversion flexibility to increase the water supply for beneficial uses	Eco	Variable	Incomplete
36	Colusa & Sutter National Wildlife Refuge	Quantity: Provide long-term diversion flexibility to increase the water supply for beneficial uses	Eco	Variable (mostly winter)	Incomplete

**Table A.4.2. Quantified Targeted Benefits, Sub-Region 4,
Mid-Sacramento Valley, Chico Landing to Knight's Landing**

TB # (1) [duplicate]	Source and Description of Quantified Targeted Benefit (7)
30 [6, 13, 20, 57, 75]	ERPP: More closely emulate seasonal streamflow patterns in dry and normal year- types by allowing a late-winter or early-spring flow event of approximately 8,000 to 10,000 cfs in dry years and 15,000 to 20,000 cfs in below normal water-years to occur below Keswick Dam; Maintain base flows of 6,000 to 8,000 cfs during fall.
31 [15, 23]	303(d): Reduce diazinon to _____.
83	303(d): Reduce diazinon to _____.
33	Core: Reduce unwanted ET by _____ acre-feet per year.
34	Core: Enhance the effectiveness of potential conjunctive use programs by reducing flows to groundwater to _____ acre feet per year during periods of shortage; and increasing flows to groundwater to _____ acre feet per year during periods of excess.
35 [27, 48, 54, 65, 73]	ERPP/ Cooperatively manage _____ acres of ag lands and restore _____ acres of seasonal, semipermanent, and Core: permanent wetlands consistent with the CV Habitat Jt Venture and N. Am. Waterfowl Mgmt. Plan.
36	Core: Provide water for the Delevan, Colusa, and Sutter National Wildlife Refuges. The following water quantities are required for the following wetland types: seasonal marsh, 4.1 - 8.5 acre-feet/acre; permanent and semipermanent marsh or brood pond, 7.4 - 13.25 acre-feet/acre; managed riparian, 4.0 - 8.0 acre-feet/acre; upland, 4.25 acre-feet/acre; and reverse-cycle, 5.25 acre-feet/acre

**Table A.4.3. Quantified Targeted Benefit Change, Sub-Region 4,
Mid-Sacramento Valley, Chico Landing to Knight's Landing**

TB # (1) [duplicate]	Reference Condition		Quantified Targeted Benefit		Quantified Targeted Benefit Change			Specific Time-Frame (11)
	Data Source (8)	Availability (9)	Data Source (8)	Data Availability (9)	Data Source (8)	Availability (9)	Range of Values (10)	
30 [6, 13, 20, 57, 75]	CVGSM	Unproven-precise	ERPP	Rough estimate	Calculated	Rough estimate	44 - 180 TAF/yr	Year round Fall
31 [15, 23]	TBD	TBD	TBD	Proven - precise	Calculated	TBD	TBD	TBD
83	TBD	TBD	TBD	Proven - precise	Calculated	TBD	TBD	TBD
33	CVGSM	Unproven-precise	Core	Rough estimate	Calculated	Rough estimate	4.6 TAF/yr	TBD
34	CVGSM	Unproven-precise	Core	Rough estimate	Calculated	Rough estimate	TBD	TBD
35 [27, 48, 54, 65, 73]	ERPP	TBD	ERPP	TBD	Calculated	TBD	4.5 TAF/yr	TBD
36	RWS (ICP)	Insufficient	RWS (ICP)	Unproven - precise	Not available	Insufficient	Not available	Not available

**Table A.4.4. Quantifiable Objective, Sub-Region 4,
Mid-Sacramento Valley, Chico Landing to Knight's Landing**

TB # (1) [duplicate]	Achievable Agricultural Potential (12)	Quantifiable Objective (13)
30 [6, 13, 20, 57, 75]	1,044 - 1,897 TAF per year	44 - 180 TAF per year
31 [15, 23]	TBD	TBD
83	TBD	TBD
33	4.6 TAF per year plus additional water generated through reduction in application through improved irrigation systems	4.6 TAF per year plus additional water generated through reduction in application through improved irrigation systems
34	TBD	TBD
35 [27, 48, 54, 65, 73]	4.5 TAF per year	4.5 TAF per year
36	TBD	TBD

**Table A.4.5. Affected Flow Paths and Possible Actions, Sub-Region 4,
Mid-Sacramento Valley, Chico Landing to Knight's Landing**

TB # (1) [duplicate]	Affected Flow Paths (14)	Possible Actions (provided as examples; proposers are encouraged to consider local actions that are not listed) (15)
30 [6, 13, 20, 57, 75]	Surface and Groundwater Return	Improve farm irrigation management (such as irrigation scheduling) and more uniform irrigation methods (such as shorter furrows, sprinkler, or drip). Reduction in operational spill through improved management, canal automation or regulatory storage. Reduction in canal seepage through canal lining or piping.
31 [15, 23]	Surface and Groundwater Return	cover crop, furrow or field diking and reduction in late season irrigation. Note: significant contributions to this TB can also be made through changes in chemical applications that are outside the scope of AgWUE.
83	Surface and Groundwater Return	cover crop, furrow or field diking and reduction in late season irrigation. Note: significant contributions to this TB can also be made through changes in chemical applications that are outside the scope of AgWUE.
33	Surface and Groundwater Return	Improve farm irrigation management (such as irrigation scheduling) and more uniform irrigation methods (such as shorter furrows, sprinkler, or drip). Reduction in operational spill through improved management, canal automation or regulatory storage. Reduction in canal seepage through canal lining or piping.
34	TBD	TBD
35 [27, 48, 54, 65, 73]	Surface water return and Percolation to Groundwater:	Improve farm irrigation management (such as irrigation scheduling) and more uniform irrigation methods (such as shorter furrows, sprinkler, or drip). Reduction in operational spill through improved management, canal automation or regulatory storage. Reduction in canal seepage through canal lining or piping.
36	TBD	TBD

Detail 33, Decrease Nonproductive ET, SubRegion 4

Step 1. Quantified Targets

A. Acreage Assumed for Reduction of Nonproductive ET

source: CVGSM Sub-Region 4

Crop	Potential for ET Red.	Existing		Assumed for ET Reduction*	
		acres	percent	acres	percent
Pasture	No	1,900	0%	0	0%
Alfalfa	No	8,400	0%	0	0%
Sugar Beet	No	11,800	0%	0	0%
Field	No	37,300	0%	0	0%
Rice	No	91,300	0%	0	0%
Truck	Yes	15,800	30%	4,740	30%
Tomato	Yes	31,800	30%	9,540	30%
Orchard	Yes	25,600	30%	7,680	30%
Grains	No	53,500	0%	0	0%
Vineyard	Yes	0	0%	0	0%
Cotton	No	0	0%	0	0%
Citrus and Olives	Yes	0	0%	0	0%
Total		277,400		21,960	8%

*The Assumed Acreage for ET Reduction is 30% of the crops that have the Potential for ET Reduction.

B. Existing ET for Sub-Region 4

source: CVGSM

Crop													Inches
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Pasture	---	---	---	---	---	---	---	---	---	---	---	---	---
Alfalfa	---	---	---	---	---	---	---	---	---	---	---	---	---
Sugar Beet	---	---	---	---	---	---	---	---	---	---	---	---	---
Field	---	---	---	---	---	---	---	---	---	---	---	---	---
Rice	---	---	---	---	---	---	---	---	---	---	---	---	---
Truck	0.00	0.00	0.00	1.50	1.00	2.00	3.70	6.60	4.60	1.00	0.00	0.00	20.40
Tomato	0.00	0.00	0.00	1.50	3.20	6.90	8.50	5.40	2.70	0.00	0.00	0.00	28.20
Orchard	1.00	1.80	2.70	2.80	4.40	5.80	6.80	5.70	4.20	2.40	1.40	1.00	40.00
Grains	---	---	---	---	---	---	---	---	---	---	---	---	---
Vineyard	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	---
Cotton	---	---	---	---	---	---	---	---	---	---	---	---	---
Citrus and Olives	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	---
Total	0.35	0.63	0.94	1.95	3.14	5.46	6.87	5.76	3.63	1.06	0.49	0.35	30.64

C. ET from Rain for Sub-Region 4

source: CVGSM

													Inches
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.58	0.89	0.63	0.10	0.50	0.21	0.00	0.08	0.87	1.72	0.67	0.51	6.76
2) Dry	0.65	1.00	1.46	0.09	0.41	0.15	0.00	0.06	1.13	1.71	0.71	0.58	7.95
3) B Norm	0.66	1.04	1.41	0.17	0.34	0.24	0.00	0.08	1.04	1.77	0.76	0.59	8.11
4) A Norm	0.66	1.10	1.60	0.22	0.38	0.04	0.00	0.06	1.06	1.87	0.79	0.59	8.36
5) Wet	0.70	1.10	1.58	0.53	0.31	0.24	0.05	0.11	0.94	1.91	0.88	0.69	9.04
Wtd Avg.	0.66	1.04	1.40	0.26	0.37	0.19	0.01	0.08	1.01	1.81	0.78	0.61	8.21

D. Existing ETAW for Sub-Region 4

source: calculated = Step 1B.(Average Total) - Step 1C., (set to 0 if Step 1B. - Step 1C. <0)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.00	0.00	0.31	1.85	2.64	5.25	6.87	5.69	2.77	0.00	0.00	0.00	25.38
2) Dry	0.00	0.00	0.00	1.87	2.73	5.31	6.87	5.70	2.51	0.00	0.00	0.00	24.99
3) B Norm	0.00	0.00	0.00	1.78	2.80	5.21	6.87	5.69	2.59	0.00	0.00	0.00	24.95
4) A Norm	0.00	0.00	0.00	1.73	2.77	5.41	6.87	5.71	2.58	0.00	0.00	0.00	25.07
5) Wet	0.00	0.00	0.00	1.43	2.84	5.21	6.82	5.65	2.70	0.00	0.00	0.00	24.64
Wtd Avg.	0.00	0.00	0.04	1.70	2.77	5.27	6.85	5.68	2.63	0.00	0.00	0.00	24.94

E. Target ETAW for Sub-Region 4

source: calculated = Step 1D. * 90%

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.00	0.00	0.28	1.67	2.38	4.72	6.18	5.12	2.49	0.00	0.00	0.00	22.84
2) Dry	0.00	0.00	0.00	1.68	2.46	4.78	6.18	5.13	2.26	0.00	0.00	0.00	22.49
3) B Norm	0.00	0.00	0.00	1.60	2.52	4.69	6.18	5.12	2.33	0.00	0.00	0.00	22.45
4) A Norm	0.00	0.00	0.00	1.56	2.49	4.87	6.18	5.14	2.32	0.00	0.00	0.00	22.56
5) Wet	0.00	0.00	0.00	1.28	2.55	4.69	6.14	5.08	2.43	0.00	0.00	0.00	22.18
Wtd Avg.	0.00	0.00	0.04	1.53	2.49	4.74	6.17	5.11	2.36	0.00	0.00	0.00	22.44

Step 2. Reference Condition

For ET Reduction the Reference Condition is the existing Crop ET, Step 1B.

Step 3. Quantified Targeted Benefit Change

A. Quantified Targeted Benefit Change for Sub-Region 4

source: calculated = Step 1D - Step 1E

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	---	0.19	0.26	0.52	0.69	0.57	0.28	---	---	---	2.51
2) Dry	---	---	---	0.19	0.27	0.53	0.69	0.57	0.25	---	---	---	2.50
3) B Norm	---	---	---	0.18	0.28	0.52	0.69	0.57	0.26	---	---	---	2.49
4) A Norm	---	---	---	0.17	0.28	0.54	0.69	0.57	0.26	---	---	---	2.51
5) Wet	---	---	---	0.14	0.28	0.52	0.68	0.56	0.27	---	---	---	2.46
Wtd Avg.	---	---	---	0.17	0.28	0.53	0.69	0.57	0.26	---	---	---	2.49

B. Quantified Targeted Benefit Change for Sub-Region 4

source: calculated = Step 1D - Step 1E

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	---	0.34	0.48	0.96	1.26	1.04	0.51	---	---	---	4.6
2) Dry	---	---	---	0.34	0.50	0.97	1.26	1.04	0.46	---	---	---	4.6
3) B Norm	---	---	---	0.33	0.51	0.95	1.26	1.04	0.47	---	---	---	4.6
4) A Norm	---	---	---	0.32	0.51	0.99	1.26	1.04	0.47	---	---	---	4.6
5) Wet	---	---	---	0.26	0.52	0.95	1.25	1.03	0.49	---	---	---	4.5
Wtd Avg.	---	---	---	0.31	0.51	0.96	1.25	1.04	0.48	---	---	---	4.6

Step 4. Area Affected by Targeted Benefit

Area affected are the 21,960 acres identified in Step 1A.

Step 5. Water Flow Path Elements

The flow path elements used in this analysis are given in Step 1.

Step 6. Idealized Agricultural Potential

Additional ET research is required to determine this component.

Step 7. Achievable Agricultural Potential

The farm Available Agricultural Potential is the same as Step 3B.

Step 8. Quantifiable Objective

A. For ET Reduction the Quantifiable Objective is Step 3B

Detail 35, Provide long-term diversion flexibility to increase the water supply for beneficial uses.

Step 1. Quantified Targets

A. Percentage of Subregion 4 in each Wetland Region

source: GIS analysis

Basin	Basin Acres	Sub-Region 4 Acres	Ratio Acreage in Sub-Region to Total Acreage
Colusa	1,100,765	128,215	0.12
Butte	574,618	105,685	0.18
Sutter	224,142	117,150	0.52
American	517,893	0	--
Yolo	514,963	382	--
Delta	1,332,584	1	--
Suisun	99,311	1	--
San Joaquin	1,877,034	1	--
Tulare	3,523,884	1	--

B. Annual Water Need for Optimum Habitat by Wetland Type

source: Central Valley Wetlands Water Supply Investigations (August, 2000)

Basin	Seasonal Wetlands	Semi-Permanent Wetlands	Permanent Wetlands	Annual Total
-----Acre Feet-----				
Colusa	43,435	7,563	6,771	57,769
Butte	72,923	11,337	10,150	94,410
Sutter	469	81	73	622
American	5,695	992	888	7,575
Yolo	25,755	4,484	4,015	34,254
Delta	10,053	1,843	1,650	13,546
Suisun	119,995	21,993	19,690	161,677
San Joaq.	188,480	20,663	15,856	225,000
Tulare	15,640	1,854	1,415	18,908

C. Fraction of Water Need Requirements by Month as a Percentage of Total Water Need- Seasonal Wetlands

source: Central Valley Wetlands Water Supply Investigations (August, 2000)

Basin	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Colusa	0.04	0.04	0.04	0.00	0.14	0.00	0.00	0.18	0.36	0.08	0.08	0.04	1.0
Butte	0.04	0.04	0.04	0.00	0.18	0.00	0.00	0.16	0.36	0.09	0.07	0.04	1.0
Sutter	0.04	0.04	0.04	0.00	0.14	0.00	0.00	0.18	0.36	0.08	0.08	0.04	1.0
American	0.04	0.04	0.04	0.00	0.14	0.00	0.00	0.18	0.36	0.08	0.08	0.04	1.0
Yolo	0.04	0.04	0.04	0.00	0.14	0.00	0.00	0.18	0.36	0.08	0.08	0.04	1.0
Delta	0.04	0.04	0.04	0.05	0.00	0.00	0.00	0.19	0.42	0.08	0.08	0.04	1.0
Suisun	0.04	0.04	0.04	0.05	0.00	0.00	0.00	0.19	0.42	0.08	0.08	0.04	1.0
San Joaq.	0.04	0.04	0.00	0.00	0.15	0.05	0.00	0.15	0.38	0.08	0.08	0.04	1.0
Tulare	0.04	0.04	0.00	0.15	0.00	0.11	0.00	0.09	0.38	0.08	0.08	0.04	1.0

D. Fraction of Water Need Requirements by Month as a Percentage of Total Water Need- Semi-Permanent Wetlands
 source: Central Valley Wetlands Water Supply Investigations (August, 2000)

Basin	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Colusa	0.03	0.03	0.05	0.07	0.07	0.14	0.14	0.00	0.00	0.41	0.05	0.03	1.0
Butte	0.03	0.03	0.05	0.07	0.07	0.14	0.14	0.00	0.00	0.41	0.05	0.03	1.0
Sutter	0.03	0.03	0.05	0.07	0.07	0.14	0.14	0.00	0.00	0.41	0.05	0.03	1.0
American	0.03	0.03	0.05	0.07	0.07	0.14	0.14	0.00	0.00	0.41	0.05	0.03	1.0
Yolo	0.03	0.03	0.05	0.07	0.07	0.14	0.14	0.00	0.00	0.41	0.05	0.03	1.0
Delta	0.03	0.03	0.05	0.07	0.07	0.14	0.14	0.00	0.00	0.41	0.05	0.03	1.0
Suisun	0.03	0.03	0.05	0.07	0.07	0.14	0.14	0.00	0.00	0.41	0.05	0.03	1.0
San Joaq.	0.03	0.03	0.05	0.07	0.07	0.14	0.14	0.00	0.00	0.41	0.05	0.03	1.0
Tulare	0.03	0.04	0.06	0.08	0.08	0.13	0.13	0.00	0.00	0.38	0.06	0.04	1.0

E. Fraction of Water Need Requirements by Month as a Percentage of Total Water Need- Permanent Wetlands
 source: Central Valley Wetlands Water Supply Investigations (August, 2000)

Basin	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Colusa	0.02	0.02	0.04	0.08	0.11	0.15	0.15	0.15	0.13	0.08	0.06	0.02	1.0
Butte	0.02	0.02	0.04	0.08	0.11	0.15	0.15	0.15	0.13	0.08	0.06	0.02	1.0
Sutter	0.02	0.02	0.04	0.08	0.11	0.15	0.15	0.15	0.13	0.08	0.06	0.02	1.0
American	0.02	0.02	0.04	0.08	0.11	0.15	0.15	0.15	0.13	0.08	0.06	0.02	1.0
Yolo	0.02	0.02	0.04	0.08	0.11	0.15	0.15	0.15	0.13	0.08	0.06	0.02	1.0
Delta	0.02	0.02	0.04	0.08	0.11	0.15	0.15	0.15	0.13	0.08	0.06	0.02	1.0
Suisun	0.02	0.02	0.04	0.08	0.11	0.15	0.15	0.15	0.13	0.08	0.06	0.02	1.0
San Joaq.	0.02	0.02	0.04	0.08	0.11	0.15	0.15	0.15	0.13	0.08	0.06	0.02	1.0
Tulare	0.02	0.02	0.04	0.08	0.11	0.15	0.15	0.15	0.13	0.08	0.06	0.02	1.0

F. Target Water Application for Private Wetlands in Sub-Region 4
 source: calculated using Step1A through Step 1E

	Thousand Acre Feet												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Seasonal	0.7	0.7	0.7	-	3.1	-	-	3.1	6.7	1.6	1.4	0.7	18.7
Semi-Perman	0.1	0.1	0.2	0.2	0.2	0.4	0.4	-	-	1.2	0.2	0.1	3.0
Permanent	0.1	0.1	0.1	0.2	0.3	0.4	0.4	0.4	0.4	0.2	0.2	0.1	2.7
Total	0.8	0.8	1.0	0.4	3.6	0.8	0.8	3.5	7.1	3.0	1.7	0.8	24.4

Step 2. Reference Condition

A. Annual Available Water Supply by Wetland Type
 source: Central Valley Wetlands Water Supply Investigations

Basin	Wetlands	Wetlands	Permanent Wetlands	Total
-----Acre Feet-----				
Colusa	36,601	6,625	6,101	49,327
Butte	57,797	9,261	8,667	75,725
Sutter	355	66	62	483
American	4,328	804	754	5,886
Yolo	25,755	4,484	4,015	34,254
Delta	10,053	1,843	1,650	13,546
Suisun	119,995	21,993	19,690	161,678
San Joaquin	181,676	19,922	15,403	217,001
Tulare	15,181	1,802	1,373	18,356

B. Available Water for Private Wetlands in Sub-Region 4

source: calculated based on Step 2A and steps 1A,1C,1D, and 1E

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Seasonal	0.6	0.6	0.6	-	2.5	-	-	2.5	5.4	1.3	1.1	0.6	15.1
Semi-Perm.	0.1	0.1	0.1	0.2	0.2	0.3	0.3	-	-	1.0	0.1	0.1	2.5
Permanent	0.0	0.0	0.1	0.2	0.3	0.4	0.4	0.4	0.3	0.2	0.1	0.0	2.3
Total	0.7	0.7	0.8	0.3	3.0	0.7	0.7	2.9	5.7	2.5	1.4	0.7	19.9

Step 3. Quantified Targeted Benefit Change

A. Additional Water Required for Optimum Management of Private Wetlands in Sub-Region

source: calculated: Step 1F- Step 2B

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Seasonal	0.1	0.1	0.1	-	0.6	-	-	0.6	1.3	0.3	0.3	0.1	3.6
Semi-Perm.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	-	-	0.2	0.0	0.0	0.5
Permanent	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.4
Total	0.2	0.2	0.2	0.1	0.7	0.1	0.1	0.7	1.3	0.5	0.3	0.2	4.5

Step 4. Area Affected By Targeted Benefit

This analysis assumes that all of the agricultural lands in the sub-region could potentially contribute to the provision of additional waters for wetlands.

Step 5. Water Flow Path Elements

A. Rain Sub-Region (inflow)

source: CVGSM Sub-Region 4

Flow Path Not Affected

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	53.9	37.8	24.4	14.6	17.5	5.7	0.0	1.3	3.3	16.4	26.2	51.9	253.0
2) Dry	56.5	53.7	57.4	24.6	12.9	3.5	0.0	0.9	9.8	16.2	43.5	63.7	342.6
3) B Norm	62.9	81.1	47.4	30.1	10.6	6.6	0.3	1.0	7.1	18.3	45.9	61.4	372.7
4) A Norm	106.1	100.4	60.1	24.9	11.8	1.0	0.3	1.0	6.9	29.0	50.9	65.0	457.5
5) Wet	106.9	81.2	65.9	47.3	9.4	7.2	1.7	2.2	5.2	35.8	76.6	107.2	546.5
Wtd Avg.	79.3	71.7	54.0	31.4	11.8	5.2	0.6	1.4	6.6	24.3	52.8	75.1	414.1

B. Surface Water Diversions Sub-Region (inflow)

source: CVGSM Sub-Region 4

Flow Path Not Affected

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	3.6	6.2	24.1	131.6	133.8	155.7	159.0	140.9	31.0	19.8	13.0	7.6	826.3
2) Dry	3.6	4.7	7.3	124.6	160.1	193.2	194.6	174.3	32.5	23.8	13.0	7.5	939.3
3) B Norm	3.7	3.8	8.8	121.2	164.2	192.8	198.6	177.3	35.3	23.9	13.5	7.3	950.4
4) A Norm	3.7	2.9	3.3	111.0	160.5	203.5	201.7	180.0	37.8	19.7	13.4	7.8	945.2
5) Wet	3.8	3.0	3.4	95.3	162.6	202.3	205.4	183.4	39.0	21.3	13.5	8.0	941.1
Wtd Avg.	3.7	4.0	8.1	114.1	158.3	192.4	195.0	174.1	35.6	22.0	13.3	7.7	928.1

C. Import Sub-Region (inflow)

source: CVGSM Sub-Region 4

Thousand Acre Feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A
2) Dry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A
3) B Norm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A
4) A Norm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A
5) Wet	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A
Wtd Avg.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A

D. Groundwater Pumping Sub-Region (inflow)

source: CVGSM Sub-Region 4

Thousand Acre Feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.1	1.6	15.8	78.3	78.4	90.4	91.1	79.3	54.7	2.0	0.2	0.1	492.1
2) Dry	0.1	0.8	3.6	44.5	53.2	63.6	63.8	55.9	49.3	1.7	0.3	0.1	336.9
3) B Norm	0.1	0.6	3.3	42.0	50.9	58.7	59.9	51.9	48.8	1.6	0.1	0.1	318.0
4) A Norm	0.1	0.1	1.2	41.4	44.9	57.9	57.3	50.0	47.8	2.3	0.1	0.1	303.2
5) Wet	0.1	0.1	1.1	35.7	40.5	50.8	51.1	44.4	49.3	1.1	0.1	0.1	274.5
Wtd Avg.	0.1	0.6	4.0	45.3	51.1	61.5	61.9	53.9	49.7	1.6	0.2	0.1	329.9

E. ET Rain Sub-Region (outflow, irrecoverable)

source: CVGSM Sub-Region 4

Flow Path Not Affected

Thousand Acre Feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	13.4	20.5	14.6	2.3	11.6	4.9	0.0	1.8	20.0	39.8	15.4	11.8	156.2
2) Dry	15.0	23.1	33.7	2.0	9.5	3.5	0.0	1.4	26.0	39.6	16.5	13.4	183.8
3) B Norm	15.2	24.1	32.7	4.0	7.9	5.6	0.0	1.8	24.1	40.9	17.5	13.7	187.6
4) A Norm	15.2	25.4	37.0	5.1	8.7	1.0	0.0	1.3	24.4	43.2	18.2	13.6	193.2
5) Wet	16.2	25.4	36.5	12.2	7.2	5.6	1.1	2.6	21.7	44.3	20.3	15.9	208.9
Wtd Avg.	15.2	24.0	32.3	6.0	8.6	4.4	0.3	1.9	23.3	41.8	17.9	14.0	189.8

F. Runoff from Rain Sub-Region (outflow, irrecoverable)

source: CVGSM Sub-Region 4

Flow Path Not Affected

Thousand Acre Feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	18.8	14.9	6.9	3.3	6.7	1.5	0.0	0.3	0.8	3.1	4.1	18.8	79.1
2) Dry	24.6	28.8	29.3	7.7	3.5	0.6	0.0	0.0	3.3	4.5	12.4	21.8	136.4
3) B Norm	28.4	48.2	23.6	12.4	3.0	1.3	0.0	0.2	2.0	5.4	10.9	25.8	161.2
4) A Norm	67.0	62.7	30.8	8.7	3.3	0.0	0.0	0.3	2.3	7.7	14.9	28.5	226.3
5) Wet	76.6	52.8	34.6	21.0	2.5	1.7	0.4	0.6	1.4	13.0	26.4	62.0	293.0
Wtd Avg.	46.0	42.6	27.0	12.3	3.5	1.1	0.1	0.3	2.0	7.5	15.6	35.3	193.3

G. ETAW Sub-Region (outflow, irrecoverable)

source: CVGSM Sub-Region 4

Flow Path Not Affected

Thousand Acre Feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.0	4.1	24.4	62.4	90.2	131.5	150.3	125.3	63.2	5.9	0.3	0.0	657.5
2) Dry	0.0	2.2	5.6	62.7	92.2	132.9	150.3	125.7	57.2	6.9	0.3	0.0	636.0
3) B Norm	0.0	1.2	6.6	60.8	93.8	130.8	150.3	125.3	59.1	6.4	0.0	0.0	634.2
4) A Norm	0.0	0.0	2.3	59.6	93.0	135.4	150.3	125.9	58.8	3.9	0.0	0.0	629.0
5) Wet	0.0	0.0	2.6	52.5	94.6	130.8	149.2	124.5	61.5	3.6	0.0	0.0	619.3
Wtd Avg.	0.0	1.3	6.9	58.8	93.1	132.0	149.9	125.2	59.9	5.3	0.1	0.0	632.5

H. Export Sub-Region (outflow, irrecoverable)

source: CVGSM Sub-Region 4

Thousand Acre Feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	3.6	3.2	3.9	23.3	25.1	29.6	31.5	30.6	14.8	14.7	12.6	7.4	200.4
2) Dry	3.5	3.0	2.0	22.2	30.8	36.9	38.9	38.4	17.9	17.6	12.5	7.4	231.0
3) B Norm	3.7	3.0	2.1	21.2	31.4	36.6	39.3	38.6	18.4	17.8	13.0	7.2	232.4
4) A Norm	3.7	2.9	1.4	21.0	30.9	38.3	39.8	39.1	18.9	17.2	12.9	7.6	233.8
5) Wet	3.8	3.0	1.4	17.5	31.1	37.6	39.8	39.1	19.1	17.9	13.2	7.9	231.4
Average	3.7	3.0	2.0	20.5	30.3	36.3	38.4	37.8	18.1	17.3	12.9	7.5	227.8

I. Surface Runoff Sub-Region (outflow, recoverable)

source: CVGSM Sub-Region 4

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.0	0.5	6.9	109.9	82.2	71.4	55.7	52.9	6.2	0.0	0.0	0.0	385.8
2) Dry	0.0	0.1	2.0	70.7	76.0	72.8	55.0	53.9	5.2	0.0	0.0	0.0	335.8
3) B Norm	0.0	0.0	2.1	67.2	76.0	69.2	54.8	53.0	5.0	0.0	0.0	0.0	327.3
4) A Norm	0.0	0.0	0.3	64.0	67.6	74.0	55.0	52.7	5.4	0.0	0.0	0.0	318.8
5) Wet	0.0	0.0	0.1	46.6	64.2	70.2	53.2	51.5	5.6	0.0	0.0	0.0	291.4
Average	0.0	0.1	1.9	66.9	72.1	71.3	54.5	52.7	5.4	0.0	0.0	0.0	324.8

J. Percolation to Groundwater Sub-Region (outflow, recoverable)

source: CVGSM Sub-Region 4

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	5.4	1.8	4.6	10.3	10.0	9.2	6.9	7.2	1.0	0.3	1.5	5.9	64.2
2) Dry	6.8	4.2	3.0	10.3	9.2	8.4	6.9	7.1	0.1	0.1	3.5	6.5	66.2
3) B Norm	7.1	8.8	2.5	10.7	9.2	8.9	6.9	7.1	0.2	0.3	3.3	6.1	71.2
4) A Norm	13.1	10.8	2.8	10.8	8.7	7.7	6.9	7.2	0.8	0.0	3.9	7.4	80.1
5) Wet	14.0	8.3	3.2	12.0	8.1	9.0	7.3	7.3	0.7	0.8	6.3	12.5	89.4
Average	9.7	6.9	3.1	11.0	8.9	8.7	7.0	7.2	0.5	0.4	4.1	8.3	75.8

K. Evaporation Flows Sub-Region

source: = 0.02 * (Step 5B + 5C - 5H)

= 0.02 * (Surface Water Diversion + Import - Export)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.0	0.1	0.4	2.2	2.2	2.5	2.5	2.2	0.3	0.1	0.0	0.0	12.5
2) Dry	0.0	0.0	0.1	2.0	2.6	3.1	3.1	2.7	0.3	0.1	0.0	0.0	14.2
3) B Norm	0.0	0.0	0.1	2.0	2.7	3.1	3.2	2.8	0.3	0.1	0.0	0.0	14.4
4) A Norm	0.0	0.0	0.0	1.8	2.6	3.3	3.2	2.8	0.4	0.1	0.0	0.0	14.2
5) Wet	0.0	0.0	0.0	1.6	2.6	3.3	3.3	2.9	0.4	0.1	0.0	0.0	14.2
Wtd Avg.	0.0	0.0	0.1	1.9	2.6	3.1	3.1	2.7	0.3	0.1	0.0	0.0	14.0

L. Sub-Region Water Balance

source: = Step 5.(A + B + C + D) - Step5. (E + F + G + H + I + J + K)

= (Rain + Surface Water Diversions + Import + Groundwater Pumping) - (ET Rain +
Runoff from Rain + ETAW + Export + Surface & Groundwater Return + Evaporation)

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	16.5	0.4	2.5	10.9	1.8	1.1	3.1	1.2	-17.3	-25.6	5.5	15.6	15.7
2) Dry	10.2	-2.2	-7.5	16.2	2.4	2.1	4.1	1.9	-18.4	-27.1	11.6	22.2	15.5
3) B Norm	12.3	0.2	-10.3	15.0	1.7	2.6	4.3	1.4	-17.8	-27.3	14.7	16.1	12.9
4) A Norm	10.9	1.6	-10.1	6.4	2.3	2.7	4.0	1.8	-18.4	-20.9	14.5	15.6	10.4
5) Wet	0.2	-5.2	-8.1	15.0	2.2	2.1	4.0	1.5	-16.9	-21.4	24.1	17.1	14.5
Wtd Avg.	8.5	-1.8	-7.3	13.6	2.1	2.2	4.0	1.6	-17.7	-24.4	15.6	17.7	14.0

M. Applied Water Ratio Sub-Region

source: = Step 5G / Step 5 (B + C + D - H)

= ETAW/(Surface Water Diversions + Import + Groundwater Pumping - Export)

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.00	0.89	0.68	0.33	0.48	0.61	0.69	0.66	0.89	0.83	0.42	0.00	#####
2) Dry	0.00	0.88	0.63	0.43	0.50	0.60	0.68	0.66	0.90	0.87	0.37	0.00	#####
3) B Norm	0.00	0.84	0.66	0.43	0.51	0.61	0.69	0.66	0.90	0.84	0.00	0.00	#####
4) A Norm	0.00	0.00	0.75	0.45	0.53	0.61	0.69	0.66	0.88	0.80	0.00	0.00	#####
5) Wet	0.00	0.00	0.88	0.46	0.55	0.61	0.69	0.66	0.89	0.79	0.00	0.00	#####
Wtd Avg.	0.0	0.5	0.7	0.4	0.5	0.6	0.7	0.7	0.9	0.8	0.1	0.0	N/A

N. Groundwater Check Sub-Region

source: = Step 5 (J - D)
= Groundwater Return Flows - Groundwater Pumping

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	5.3	0.2	-11.2	-68.0	-68.4	-81.2	-84.2	-72.1	-53.7	-1.7	1.3	5.8	-427.9
2) Dry	6.7	3.4	-0.6	-34.3	-43.9	-55.2	-56.9	-48.8	-49.2	-1.6	3.2	6.4	-270.8
3) B Norm	7.0	8.2	-0.8	-31.2	-41.6	-49.8	-52.9	-44.8	-48.7	-1.3	3.2	6.0	-246.8
4) A Norm	13.0	10.7	1.6	-30.7	-36.2	-50.2	-50.4	-42.8	-47.0	-2.3	3.8	7.3	-223.0
5) Wet	13.9	8.2	2.1	-23.7	-32.3	-41.8	-43.9	-37.1	-48.7	-0.3	6.2	12.5	-185.1
Wtd Avg.	9.6	6.3	-0.9	-34.4	-42.1	-52.8	-54.8	-46.7	-49.2	-1.3	3.9	8.2	-254.1

6. Idealized Agricultural Potential

A. Export Adjustment

92% of Export (Step 5H.) water is available for flow/timing changes in Sub-Region
note: Import (Step 5C) and Export (Step 5H) are in the water balance. In this Step (7D) Export water is considered water that flows through districts in Sub-Regions 4, 5, and 7. This water is available to make flow/timing changes

source: CVGSM Sub-Region

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	3.6	21.4	23.0	27.3	29.0	28.2	13.7	13.5	---	---	159.7
2) Dry	---	---	1.9	20.4	28.3	33.9	35.7	35.3	16.5	16.2	---	---	188.2
3) B Norm	---	---	2.0	19.5	28.9	33.7	36.2	35.6	16.9	16.4	---	---	189.0
4) A Norm	---	---	1.3	19.3	28.4	35.3	36.6	36.0	17.4	15.8	---	---	190.1
5) Wet	---	---	1.3	16.1	28.6	34.6	36.6	36.0	17.6	16.4	---	---	187.2
Wtd Avg.	N/A	N/A	1.9	18.9	27.8	33.4	35.3	34.7	16.7	15.9	N/A	N/A	184.6

B. Idealized Agricultural Potential

source: = Step 5 ((B + C + D) + Step 6A. - Step 5 (G + H))
= Surface Water Diversions + Import + Groundwater Diversions) - (ETAW + Export + Export Adjustment)

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	15.2	145.7	120.0	112.3	97.3	92.4	21.4	14.7	---	---	619.0
2) Dry	---	---	5.1	104.7	118.7	121.0	105.0	101.5	23.2	17.2	---	---	596.3
3) B Norm	---	---	5.3	100.7	118.8	117.8	105.0	100.8	23.6	17.6	---	---	589.7
4) A Norm	---	---	2.0	91.2	109.9	123.0	105.5	101.0	25.3	16.8	---	---	574.6
5) Wet	---	---	1.7	77.1	106.0	119.4	104.2	100.2	25.3	17.4	---	---	551.3
Wtd Avg.	N/A	N/A	5.0	99.1	113.9	119.0	103.8	99.7	23.9	17.0	N/A	N/A	581.4

7. Achievable Agricultural Potential

A. Farm Demand

assumes farm loss fraction of 0.25 for Sub-Region , values vary by SubRegion
source: = ETAW / Farm High (1- loss fraction)

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	32.5	83.2	120.2	175.3	200.3	167.1	84.2	7.9	---	---	870.9
2) Dry	---	---	7.5	83.6	122.9	177.2	200.3	167.6	76.3	9.2	---	---	844.7
3) B Norm	---	---	8.8	81.0	125.1	174.4	200.3	167.1	78.8	8.6	---	---	844.1
4) A Norm	---	---	3.1	79.5	124.0	180.5	200.3	167.8	78.4	5.1	---	---	838.7
5) Wet	---	---	3.5	70.0	126.1	174.4	198.9	166.0	82.0	4.8	---	---	825.7
Wtd Avg.	---	---	9.2	78.4	124.1	176.0	199.9	167.0	79.9	7.1	---	---	841.4

B. Groundwater Pumping after System Improvements

Existing Farm Efficiency for Sub-Region = 0.70
 source: = (1 - 0.7 * (1/0.7-1/(1-Farm Loss Fraction))) * Groundwater Pumping

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	14.8	73.1	73.1	84.4	85.0	74.1	51.1	1.8	---	---	457.4
2) Dry	---	---	3.3	41.6	49.6	59.4	59.5	52.2	46.0	1.6	---	---	313.3
3) B Norm	---	---	3.0	39.2	47.5	54.8	55.9	48.5	45.6	1.5	---	---	295.9
4) A Norm	---	---	1.1	38.7	41.9	54.0	53.5	46.6	44.6	2.1	---	---	282.6
5) Wet	---	---	1.0	33.3	37.8	47.4	47.7	41.4	46.1	1.0	---	---	255.8
Wtd Avg.	---	---	3.8	42.3	47.6	57.4	57.7	50.3	46.4	1.5	---	---	307.1

C. Farm Demand not met by Groundwater Pumping

source: = Step 7.A - Step 7.B
 = Farm Demand - Groundwater Pumping

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	17.8	10.1	47.1	90.9	115.3	93.1	33.2	6.0	---	---	413.5
2) Dry	---	---	4.2	42.1	73.3	117.9	140.8	115.4	30.3	7.6	---	---	531.4
3) B Norm	---	---	5.8	41.8	77.6	119.6	144.5	118.6	33.2	7.1	---	---	548.1
4) A Norm	---	---	2.0	40.8	82.1	126.5	146.9	121.2	33.8	3.0	---	---	556.1
5) Wet	---	---	2.5	36.7	88.3	126.9	151.2	124.6	36.0	3.8	---	---	569.9
Wtd Avg.	---	---	5.5	36.0	76.4	118.6	142.2	116.7	33.4	5.5	---	---	534.4

D. Water Supplier Delivery to Meet Farm Demand

assumes district loss fraction of 0.08
 source: = Step 7C / District High (1- loss fraction)
 = Farm Demand not met by Groundwater Pumping/(1 - 0.08)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	19.3	11.0	51.2	98.8	125.3	101.2	36.0	6.6	---	---	449.4
2) Dry	---	---	4.5	45.7	79.6	128.1	153.1	125.4	32.9	8.3	---	---	577.6
3) B Norm	---	---	6.3	45.5	84.3	130.0	157.0	128.9	36.1	7.7	---	---	595.8
4) A Norm	---	---	2.1	44.3	89.2	137.5	159.6	131.7	36.8	3.2	---	---	604.5
5) Wet	---	---	2.7	39.9	96.0	138.0	164.3	135.4	39.1	4.1	---	---	619.5
Wtd Avg.	---	---	5.9	39.2	83.1	128.9	154.5	126.8	36.4	6.0	---	---	580.8

E. Achievable Agricultural Potential

source = Step 5.(B + C - H) + Step 6A - Step 7D.
 = Surface Water Diversions + Import - Export + Export Adjustment - Water Supplier Delivery to Meet Farm Demand

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	4.5	118.7	80.6	54.5	31.1	37.3	0.0	12.1	---	---	338.8
2) Dry	---	---	2.7	77.1	78.0	62.2	38.4	45.8	0.0	14.1	---	---	318.3
3) B Norm	---	---	2.4	74.0	77.4	59.9	38.4	45.3	0.0	14.8	---	---	312.2
4) A Norm	---	---	1.0	65.0	68.8	63.0	38.9	45.1	0.0	15.1	---	---	296.8
5) Wet	---	---	0.5	54.0	64.2	61.4	38.0	44.9	0.0	15.8	---	---	278.6
Wtd Avg.	---	---	2.0	73.3	72.8	60.6	37.4	44.2	0.0	14.6	---	---	304.9

F. Groundwater Check after System Improvements

$$\text{source} = (0.25 * 0.80 * \text{ETAW}) + (0.04 * (\text{Farm Demand w/o Groundwater} - \text{Water Supplier Delivery})) - \text{Groundwater Pumping}$$

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	-11.0	-65.8	-60.5	-64.5	-61.5	-54.6	-42.2	-0.8	---	---	-360.9
2) Dry	---	---	-2.5	-32.1	-35.0	-37.4	-34.2	-31.2	-38.0	-0.4	---	---	-210.8
3) B Norm	---	---	-2.0	-30.0	-32.4	-33.0	-30.3	-27.3	-37.1	-0.4	---	---	-192.4
4) A Norm	---	---	-0.7	-29.7	-26.6	-31.2	-27.8	-25.2	-36.1	-1.5	---	---	-178.9
5) Wet	---	---	-0.6	-25.3	-21.9	-25.1	-21.8	-19.9	-37.2	-0.4	---	---	-152.2
Wtd Avg.	---	---	-2.7	-33.7	-32.7	-35.5	-32.4	-29.2	-37.9	-0.6	---	---	-204.6

8. Quantifiable Objective

$$\text{source} = \min(\text{Step 3A Wtd Avg, Step 7E})$$

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Wtd Avg	---	---	0.2	0.1	0.7	0.1	0.1	0.7	0.0	0.5	---	---	2.4