

## Appendix S4. Ranking of candidate dams based on hydrologic, ecological and jurisdictional criteria

Table S4.1 Top 20-ranking dams sorted by storage capacity, seasonal flow alteration, and degree-of-regulation

Storage Capacity (Mm <sup>3</sup> )		Seasonal flow alteration (Pearson's <i>r</i> )*		Degree-of-Regulation (capacity/mean annual inflow)	
Shasta	5615	Meadow Lake	-0.03	Trampas Canyon	180
Don Pedro Main	2504	Santa Felicia	-0.03	Copper Basin	97
Monticello	1976	Lake Almanor	0.04	Wood Ranch	95
Lake Almanor	1613	Lower Blue Lake	0.07	Woodward	77
Pine Flat	1233	Twitchell	0.08	Paicines	74
Folsom	1203	Iron Canyon	0.10	Westlake Reservoir	74
Lake Tahoe	903	Tinemaha	0.13	Modesto Res	65
Friant	642	Jackson Lake	0.15	Upper Oso	53
Clear Lake	556	Upper Blue Lake	0.18	Bouquet Canyon	51
Warm Springs	470	Lake Tahoe	0.22	Casitas	42
San Antonio	432	James Turner (San Antonio)	0.32	McBrien	40
Nacimiento	419	Iron Gate	0.36	Mission Viejo, Lake	33
Castaic	399	Pit No. 4 Diversion	0.37	Castaic	28
Casitas	313	Calaveras	0.37	Terminal	19
Whiskeytown	297	Thermalito Diversion	0.43	San Andreas	18
Twitchell	296	Lewiston	0.44	Whale Rock	18
Bradbury	253	Lower Crystal Springs	0.46	Lake Arrowhead	17
Long Valley	226	Pit No. 5 Diversion	0.48	Tule Lake (Moon Lake)	13
Pyramid	222	Keswick	0.50	Tejon Storage 2	12
Lake Kaweah	176	Monticello	0.51	Monticello	9

\*Correlation between observed and expected (modeled) mean monthly flows, assessed only at dams with downstream gages (n = 252)

Table S4.2 Top 20-ranking dams sorted by number of imperiled flow-sensitive species and native species richness

<b>Imperiled flow-sensitive species richness</b>		<b>Native species richness</b>	
Camp Far West Diversion	6	Red Bluff Diversion	21
Red Bluff Diversion	6	Woodbridge Div	19
Camp Far West	6	Camp Far West Diversion	17
Whiskeytown	5	Camp Far West	17
Lake Anza (C L Tilden Park)	5	Lake Anza (C L Tilden Park)	16
Woodbridge Div	5	Whiskeytown	15
Clear Lake	5	Nash	15
Castaic	4	Keswick	15
Nash	4	Herman, Lake	15
Lewiston	4	Anderson Cottonwood	15
Edwards Reservoir	3	Shasta	15
Lauro	3	Nimbus	15
Keswick	3	Folsom	15
Malibu Lake Club	3	Woodward	14
Lucerne, Lake	3	Warm Springs	14
Pine Flat	3	Farmington Dam	14
Farmington Dam	3	Crocker Diversion (Snelling Diversion)	14
Magalia	3	Merlo	14
Paradise	3	Goodwin	14
Trampas Canyon	3	Tulloch	14

Table S4.3 Candidate dams subject to federal FERC or ESA regulations that require environmental flows

<b>Dam Name</b>	<b>Owner/Operator</b>
Agnew Lake	Southern California Edison Company
Balch Afterbay	Pacific Gas and Electric Company
Bowman	Nevada Irrigation District
Camp Far West	South Sutter Water District
Cape Horn Dam (Van Arsdale Reservoir)	Pacific Gas and Electric Company
Caples Lake (Twin Lake)	Pacific Gas and Electric Company
Cedar Springs	California Dept Of Water Resources
Clear Lake	U S Bureau Of Reclamation
Don Pedro Main	Turlock Irrigation District
Faucherie Lake Main	Nevada Irrigation District
French Lake	Nevada Irrigation District
Friant	U S Bureau Of Reclamation
Iron Canyon	Pacific Gas and Electric Company
Iron Gate	Pacificorp
Jackson Lake	Nevada Irrigation District
Jackson Meadows	Nevada Irrigation District
Kerckhoff	Pacific Gas and Electric Company
Lake Almanor	Pacific Gas and Electric Company
Lake Tahoe	U S Bureau Of Reclamation
Lower Blue Lake	Pacific Gas and Electric Company
McSwain	Merced Irrigation District
Meadow Lake	Pacific Gas and Electric Company
Merced Falls	Pacific Gas and Electric Company
Milton	Nevada Irrigation District
Monticello	U S Bureau Of Reclamation
Pit No. 4 Diversion	Pacific Gas and Electric Company
Pit No. 5 Diversion	Pacific Gas and Electric Company
Pit River Weir	Pacific Gas and Electric Company
Pyramid	California Department Of Water Resources
Santa Felicia	United Water Conservation District
Scott	Pacific Gas and Electric Company
Shasta	U S Bureau Of Reclamation
Thermalito Diversion	California Department Of Water Resources
Tulloch	South San Joaquin Irrigation District
Twin Lakes	Pacific Gas and Electric Company
Upper Blue Lake	Pacific Gas and Electric Company
Virginia Ranch	Browns Valley Irrigation District
Whiskeytown	U S Bureau Of Reclamation

Table S4.4 Candidate dams ordered by primary purpose designations

<b>Dam Name</b>	<b>Primary Purpose</b>
Englebright	Debris Control
Arundell Barranca	Flood Control
Big Tujunga No. 1	Flood Control
Boxsprings	Flood Control
Dry Creek	Flood Control
Farmington Dam	Flood Control
Hansen	Flood Control
Martis Creek	Flood Control
Mojave Dam	Flood Control
Pacoima	Flood Control
Pine Flat	Flood Control
Prosser Creek	Flood Control
Santa Fe	Flood Control
Sepulveda	Flood Control
Sycamore	Flood Control
Sycamore Canyon	Flood Control
Terminus (Lake Kaweah)	Flood Control
Agnew Lake	Hydroelectric
Balch Afterbay	Hydroelectric
Cape Horn Dam (Van Arsdale Reservoir)	Hydroelectric
Caples Lake (Twin Lake)	Hydroelectric
Don Pedro Main	Hydroelectric
Iron Canyon	Hydroelectric
Kerckhoff	Hydroelectric
Lake Almanor	Hydroelectric
Long Valley	Hydroelectric
Lower Blue Lake	Hydroelectric
McSwain	Hydroelectric
Meadow Lake	Hydroelectric
Merced Falls	Hydroelectric
Nacimiento	Hydroelectric
Nimbus	Hydroelectric
Pit No. 4 Diversion	Hydroelectric
Pit No. 5 Diversion	Hydroelectric
Pit River Weir	Hydroelectric
San Gabriel	Hydroelectric
Scott	Hydroelectric
Tulloch	Hydroelectric
Twin Lakes	Hydroelectric
Upper Blue Lake	Hydroelectric

Whiskeytown	Hydroelectric
Albaugh No 2	Irrigation
Alisal Creek	Irrigation
Anderson Cottonwood	Irrigation
Bean Hollow #2 (De Los Frijoles)	Irrigation
Bean Hollow #3 (De Los Frijoles)	Irrigation
Bear Valley	Irrigation
Blodgett	Irrigation
Bowman	Irrigation
Bridgeport	Irrigation
Camp Far West	Irrigation
Camp Far West Diversion	Irrigation
Casitas	Irrigation
Castaic	Irrigation
Crocker Diversion (Snelling Diversion)	Irrigation
Dove Canyon	Irrigation
Dry Canyon	Irrigation
Edwards Reservoir	Irrigation
Elmer J Chesbro	Irrigation
Faucherie Lake Main	Irrigation
Folsom	Irrigation
French Lake	Irrigation
Friant	Irrigation
Glen Anne	Irrigation
Goodwin	Irrigation
Grass Valley	Irrigation
Guadalupe	Irrigation
Hawkins	Irrigation
Haynes Res	Irrigation
Heenan Lake	Irrigation
Herman, Lake	Irrigation
Hernandez	Irrigation
Jackson Lake	Irrigation
Juncal	Irrigation
Keswick	Irrigation
La Grange	Irrigation
Lake Arrowhead	Irrigation
Lake Gregory	Irrigation
Lake Hemet	Irrigation
Lake Sherwood	Irrigation
Lake Tahoe	Irrigation
Lewiston	Irrigation
Lopez	Irrigation

Lower Kinney Lake	Irrigation
Lucerne, Lake	Irrigation
Magalia	Irrigation
Matilija	Irrigation
McBrien	Irrigation
Merlo	Irrigation
Modesto Res	Irrigation
Monticello	Irrigation
Myers	Irrigation
Nash	Irrigation
North Fork (Pacheco Dam)	Irrigation
Paicines	Irrigation
Paradise	Irrigation
Peoples Weir	Irrigation
Pomponio Ranch	Irrigation
Putah Diversion	Irrigation
Rancho Cielito	Irrigation
Rector Creek	Irrigation
Red Bluff Diversion	Irrigation
Renner Sibley Cr	Irrigation
Rodden Lake	Irrigation
Ross No 1	Irrigation
San Antonio	Irrigation
San Dimas	Irrigation
San Justo	Irrigation
Searsville	Irrigation
Shasta	Irrigation
Sulphur Creek	Irrigation
SX (Essex)	Irrigation
Tejon Storage 2	Irrigation
Tule Lake (Moon Lake)	Irrigation
Upper Oso	Irrigation
Uvas	Irrigation
Vail	Irrigation
Van Vleck	Irrigation
Virginia Ranch	Irrigation
West Valley	Irrigation
Westlake Reservoir	Irrigation
Whale Rock	Irrigation
William, Lake	Irrigation
Woodward	Irrigation
Weaver	Recreation
Clear Lake	Unknown

Deer Hill	Unknown
Fallen Leaf	Unknown
Green Tank	Unknown
Iron Gate	Unknown
Rubber Dam 1	Unknown
Rubber Dam 2	Unknown
Rubber Dam 3	Unknown
Twitchell	Unknown
Warm Springs	Unknown
Woodbridge Div	Unknown
Alpine	Water Supply
Anthony House	Water Supply
Bon Tempe	Water Supply
Bouquet Canyon	Water Supply
Bradbury	Water Supply
Calaveras	Water Supply
Cedar Springs	Water Supply
Chabot	Water Supply
Clementia	Water Supply
Copper Basin	Water Supply
Gibraltar	Water Supply
Grant Lake	Water Supply
Jackson Meadows	Water Supply
James H Turner (San Antonio Reservoir)	Water Supply
Lake Anza (C L Tilden Park)	Water Supply
Lake Frey	Water Supply
Lake Oneill	Water Supply
Lauro	Water Supply
Lower Crystal Springs	Water Supply
Malibu Lake Club	Water Supply
Milton	Water Supply
Mission Viejo, Lake	Water Supply
Morris	Water Supply
Municipal	Water Supply
New U San Leandro	Water Supply
Newell	Water Supply
Notre Dame	Water Supply
Novato Creek	Water Supply
Peters	Water Supply
Phoenix Lake	Water Supply
Pilarcitos	Water Supply
Potrero	Water Supply
Pyramid	Water Supply

Salinas	Water Supply
San Andreas	Water Supply
San Pablo	Water Supply
Santa Felicia	Water Supply
Scout Lake	Water Supply
Seeger	Water Supply
Soulajule	Water Supply
Terminal	Water Supply
Thermalito Diversion	Water Supply
Tinemaha	Water Supply
Trampas Canyon	Water Supply
Wood Ranch	Water Supply