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Table H-1. Attribute Summary of Riparian Vegetation and Substrate along Hell Hole Reservoir Inflows and Shoreline.

Corresponding Map Polygon Number ¹	Bank	Attribute				Notes	Area (acres)	Area (square feet)
		Dominant Species		Sub-Dominant Species	Dominant Substrate			
		Dominant Species Present ²	Structure ³					
Rubicon River Upstream from Hell Hole Reservoir								
UH41	Left	None	Not applicable	None	cobble-gravel	On top of bedrock overlooking pool	0.29	12,541
UH42	Right	None	Not applicable	None	cobble	5% drift/flat area	0.17	7,350
UH43	Left	None	Not applicable	None	bedrock	75-100 ft before reaching PICO line	0.20	8,774
UH44	Right	None	Not applicable	None	bedrock	75-100 ft before reaching PICO line	0.17	7,520
UH45	Left	None	Not applicable	None	bedrock	Deep (20 ft) dry falls	0.16	6,959
UH46	Right	None	Not applicable	None	bedrock	Deep (20 ft) dry falls	0.18	7,928
UH47	Left	SALIX, ALRH2	S, O	DAPE, DRAR3	bedrock-cobble		0.00	159
UH48	Left	None	Not applicable	None	bedrock	Sparse <5% upland vegetation (PIPO, CADE27, EPCA3)	0.18	7,881
UH49	Right	None	Not applicable	None	bedrock	Sparse <5% upland vegetation (PIPO, CADE27, EPCA3)	0.14	5,909
UH50	Left	SALA6	O	SPDE, moss	bedrock-boulder	Directly across from gaging station	0.00	207
UH51	Right	ALRH2	M	DAPE <1%, JUNCUS sp.	bedrock-cobble	Directly across from gaging station.	0.00	144
UH52	Left	ALRH2	Y	DAPE 10%	bedrock-boulder		0.00	179
UH53	Right	ALRH2	Y	BRCA3, MICA3	cobble	Near cobble bar	0.00	187
UH54	Left	SALA6	O	DAPE, upland sp. < 5%	bedrock-boulder		0.02	1,012
UH55	Right	ALRH2	Y	DAPE, MIAU (20%)	cobble		0.01	576

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Corresponding Map Polygon Number ¹	Bank	Attribute				Notes	Area (acres)	Area (square feet)
		Dominant Species		Sub-Dominant Species	Dominant Substrate			
		Dominant Species Present ²	Structure ³					
Five Lakes Creek								
UH01	-	SALIX	S	PSME, CADE27	bedrock-boulder		0.00	172
UH02	-	ALRH2, POBAT	S, Y, M, O	DAPE, WOFI, LEOR	boulder-bedrock	Woody debris 10%; after turn in river Before broad cobble floodplain Woody debris 25%	0.07	3,258
				ANMA, MICA3, CADE27, CILA2				0
				PSME, CADE27				0
UH03	-	ALRH2	S, Y	DAPE, MICA3, HEMI7, ANMA	bedrock	In narrow bedrock canyon	0.00	0
UH04	-	ALRH2, SALIX	S, Y	GNRA, ROCU2	bedrock-boulder-cobble		0.01	274
UH05	-	ALRH2, SALIX	S	EPCA3, DAPE, ROCU2	bedrock	Within narrow bedrock slot	0.04	1,801
UH06	-	ALRH2, SALIX	S, Y	JUPHP, MIAU, CILA2, EPCI	bedrock	Sloped bedrock canyon	0.01	586
UH07	-	ALRH2, SALIX	S, Y, M, O	DAPE, EPCI	bedrock-boulder-gravel-sand		0.11	4,627
UH08	-	ALRH2, SALIX,	S, Y, M, O	DAPE, EPCA3 DRAR3, POKR	boulder-bedrock		0.05	2,374
UH09	-	None	Not applicable	DAPE, QUCH2, EPCA3	bedrock-boulder	Gaging station location	0.02	1,028
UH10	-	None	Not applicable	DAPE, QUCH2, EPCA3	bedrock-boulder		0.03	1,174
UH11	-	SALIX, POBAT	S, Y	DAPE	bedrock-boulder	Seedlings in boulders in sandy patches	0.03	1,179
UH12	-	ALRH2, POBAT	S	EPCI	bedrock-boulder		0.02	736

Table H-1. Attribute Summary of Riparian Vegetation and Substrate along Hell Hole Reservoir Inflows and Shoreline (continued).

Corresponding Map Polygon Number ¹	Bank	Attribute				Notes	Area (acres)	Area (square feet)
		Dominant Species		Sub-Dominant Species	Dominant Substrate			
		Dominant Species Present ²	Structure ³					
UH13	-	POBAT	NA	Aster sp., various grasses, MEST	boulder		0.03	1,153
UH14	-	None	Not applicable	Aster sp., various grasses, MEST	boulder		0.01	461
UH15	-	SALIX, POBAT	S, Y, M, O	VICA5 20% PTAQP2, various grasses, EPCI, JUNCUS sp.	boulder		0.39	16,787
UH16	-	ALRH2, SALIX, POBAT	S, Y, M	CILA2, EQLA, DIAC2, EPCI, JUNE, JUCH, JUPHP	cobble-gravel	Seedlings line water's edge	0.10	4,419
UH17	-	SALIX	S	EPCI, JUNCUS sp., CAAT3, MICA3, DIAC2, CILA2	bedrock-boulder		0.11	4,707
UH18	-	ALRH2	S	EPCI, JUNCUS sp., CAAT3, MICA3, DIAC2, CILA2	bedrock-boulder		0.06	2,728
UH19	-	ALRH2, SALIX	S, Y, M, O	EPCI, MICA3, DIAC2, CILA2, JUNCUS sp.	cobble-gravel-sand		0.15	6,636
UH20	-	SALIX	S, Y, M, O	LOOB2, various grasses	sand		0.08	3,343
UH21	-	POBAT	Y	JUPHP, MICA3, CIVU	boulder		0.01	554
UH22	-	SALIX	S, Y	JUPHP, MICA3, CIVU	boulder		0.00	0
UH23	-	ALRH2, SALIX	S, Y, M, O	JUPHP, MICA3, GNCA2, VETH, EPCI	cobble		0.05	2,210
UH24	-	POBAT	S, Y, M, O	JUPHP, CIVU, CAAT3, MICA3, various grasses	sand		0.06	2,619

Table H-1. Attribute Summary of Riparian Vegetation and Substrate along Hell Hole Reservoir Inflows and Shoreline (continued).

Corresponding Map Polygon Number ¹	Bank	Attribute				Notes	Area (acres)	Area (square feet)
		Dominant Species		Sub-Dominant Species	Dominant Substrate			
		Dominant Species Present ²	Structure ³					
UH25	-	ALRH2, SALIX	S, Y, M, O	JUPHP, CIVU, CAAT3, MICA3, various grasses	bedrock-cobble	0.06	2,503	
UH26	-			None	boulder	0.06	2,634	
UH27	-	ALRH2, SALIX, POBAT	S, Y, M, O	JUPHP, various grasses, CAREX sp.	sand	0.09	3,911	
UH28	-	ALRH2, SALIX	S, Y, M, O	JUPHP, EPCI, MIMO3, COCA5	boulder-cobble-gravel	0.08	3,669	
UH29	-	ALRH2, SALIX	S, Y	ROCR3, MIMO3, MILE2, EPCI	cobble	0.21	8,944	
UH30	-	ALRH2, SALIX	S	CHBO2, EPCI, ROCR3, HYPE	sand	0.06	2,528	
Un-named Tributary								
UH31	-	PIPO	Y, M, O	QUCH2, CADE27, QUKE	bedrock	Thin layer of duff; upland species only	0.03	1,408
UH32	-	VICA5	Not applicable	GNCA2, QUKE, QUCH2, PIPO	boulder-cobble-gravel	Entire streambed covered by VICA5	0.19	8,373
UH33	-	SALU	O	None	bedrock-gravel-fines	Drift cover 50 - 65% of ground	0.09	3,794
UH34	-	VICA5	Not applicable	one overhanging QUCH2, POGL9	bedrock-boulder		0.09	3,989
UH35	-	None	-	COCA5, GNCA2, VUMI, DIAC2, MEOF	bedrock-boulder		0.09	4,067
UH36	-	ALRH2	Y, M	CAVEV2 (1%)	boulder-gravel	Small individuals (2 ft. tall)	0.03	1,232
UH37	-	None	Not applicable	VETH, various grasses, GNCA2 in channel (all <5% cover)	fines-bedrock-boulder		0.06	2,617
UH38	-	SALU, VICA5	O	COCA5, GADI2, MEST, AGOR	boulder-bedrock-fines	1 large SALU in stream channel	0.07	3,175
UH39	-	None	Not applicable	COCA5, GADI2, MEST, AGOR	boulder-bedrock-fines	Drift cover 25%	0.16	6,854
UH40	-	SALU	Y, O	None	fines	3 large shrubs, 8 young	0.55	23,903

Table H-1. Attribute Summary of Riparian Vegetation and Substrate along Hell Hole Reservoir Inflows and Shoreline (continued).

Corresponding Map Polygon Number ¹	Bank	Attribute				Notes	Area (acres)	Area (square feet)
		Dominant Species		Sub-Dominant Species	Dominant Substrate			
		Dominant Species Present ²	Structure ³					
Hell Hole Reservoir Shoreline⁴								
H02	-	POBAT, SALIX	S, Y, M, O	-	bedrock-sand		0.10	4,514
H01	-	SALIX	S, Y	-	-		0.00	189
H03	-	POBAT, SALIX	S, Y	-	boulder-sand		0.42	18,186
H04	-	SALIX	M, O	-	boulder-sand		0.25	10,722
H06	-	SALIX	O	-	-		0.01	361
H05	-	SALIX	O	-	-		0.01	361
H11	-	VICA5	Not applicable	-	-		0.02	1,042
H10	-	SALIX	M	-	sand		0.02	804
H09	-	SALIX	M, O	-	boulder-cobble-sand		0.01	552
H07	-	SALIX	M, O	-	cobble-sand		0.01	493
H08	-	SALIX	Y, O	-	sand		0.01	302
H12	-	POBAT, SALIX	S, Y, M, O	-	cobble-gravel-sand		0.10	4,438
H13	-	SALIX	S, Y, O	-	cobble-gravel-sand		0.10	4,378
H14	-	SALIX	O	-	-		0.06	2,806
H15	-	SALIX	-	-	-		0.00	179
H16	-	SALIX	O	-	-		0.05	2,326
H17	-	SALIX	-	-	-		0.08	3,513
H18	-	SALIX	-	-	-		0.02	922
H19	-	SALIX	-	-	-		0.01	414
H20	-	SALIX	-	-	-		0.01	407
H21	-	SALIX	-	-	-		0.01	340
H26	-	SALIX	-	-	-		0.04	1,751
H27	-	SALIX	S, Y, M, O	-	bedrock-boulder-sand		0.34	14,676
H22	-	SALIX	-	-	-		0.03	1,477
H24	-	SALIX	-	-	-		0.01	384
H25	-	SALIX	-	-	-		0.01	283
H23	-	SALIX	-	-	-		0.01	288
H28	-	SALIX	O	-	bedrock		0.02	669

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Corresponding Map Polygon Number ¹	Bank	Attribute				Notes	Area (acres)	Area (square feet)
		Dominant Species		Sub-Dominant Species	Dominant Substrate			
		Dominant Species Present ²	Structure ³					
H29	-	VICA5	Not applicable	-	-		0.01	554
H32	-	POBAT, SALIX	S, Y, M, O	-	boulder-cobble-gravel-sand		0.18	8,009
H33	-	SALIX	O	-	boulder-cobble-gravel-sand		0.03	1,100
H30	-	VICA5	Not applicable	-	-		0.05	2,389
H34	-	POBAT, SALIX	Y	-	boulder-cobble-gravel		0.01	341
H38	-	POBAT	O	-	boulder-sand		0.04	1,696
H39	-	VICA5	Not applicable	-	-		0.03	1,193
H41	-	SALIX	-	-	-		0.01	316
H42	-	ALRH2, SALIX	S, Y, M, O	-	-		0.44	19,213
H44	-	SALIX	S, Y	-	sand		0.25	10,963
H47	-	SALIX	-	-	-		0.26	11,268
H48	-	SALIX	Y	-	-		0.02	662
H49	-	SALIX	O	-	-		0.04	1,942
H50	-	POBAT	M	-	-		0.01	641
H51	-	SALIX	-	-	-		0.02	824
H45	-	SALIX	S, Y	-	sand		0.12	5,105
H52	-	ALRH2, POBAT, SALIX	S, Y	-	boulder-cobble-gravel		0.13	5,479
H53	-	SALIX	-	-	-		0.00	215
H54	-	SALIX	-	-	-		0.01	242
H55	-	SALIX	-	-	-		0.01	514
H56	-	SALIX	-	-	-		0.01	290
H59	-	SALIX	-	-	-		0.01	653
H57	-	SALIX	-	-	-		0.04	1,541
H58	-	SALIX	-	-	-		0.05	2,155
H60	-	SALIX	S, Y	-	-		0.37	15,956
H61	-	SALIX	-	-	-		0.01	497
H62	-	SALIX	-	-	-		0.01	556

Table H-1. Attribute Summary of Riparian Vegetation and Substrate along Hell Hole Reservoir Inflows and Shoreline (continued).

Corresponding Map Polygon Number ¹	Bank	Attribute				Notes	Area (acres)	Area (square feet)
		Dominant Species		Sub-Dominant Species	Dominant Substrate			
		Dominant Species Present ²	Structure ³					
H64	-	POBAT, SALIX	M	-	gravel-sand	0.15	6,541	
H65	-	VICA5	Not applicable	-	-	0.04	1,840	
H63	-	VICA5	Not applicable	-	-	0.05	2,145	
H66	-	VICA5	Not applicable	-	-	0.07	3,126	
H67	-	POBAT	S, M	-	-	0.01	460	
H68	-	SALIX	-	-	-	0.12	5,304	
H70	-	SALIX	-	-	-	0.01	576	
H71	-	SALIX	-	-	-	0.02	677	
H69	-	SALIX	-	-	-	0.05	2,066	
H73	-	SALIX	Y, O	-	-	0.02	820	
H72	-	SALIX	-	-	-	0.02	858	
H74	-	SALIX	-	-	-	0.02	682	
H76	-	SALIX	-	-	-	0.01	457	
H75	-	SALIX	O	-	-	0.03	1,142	
H79	-	SALIX	-	-	-	0.02	659	
H78	-	SALIX	-	-	-	0.02	1,070	
H77	-	SALIX	-	-	-	0.01	496	
H80	-	SALIX	M	-	-	0.02	795	
H81	-	VICA5	Not applicable	-	-	0.05	1,981	
H82	-	VICA5	Not applicable	-	-	0.02	724	
H84	-	VICA5	Not applicable	-	-	0.02	832	
H83	-	VICA5	Not applicable	-	-	0.03	1,188	
H85	-	SALIX (dead)	M	-	-	0.03	1,482	
H86	-	POBAT, SALIX, VICA5	-	-	-	0.42	18,477	
H87	-	SALIX	S, Y, O	-	finer	0.02	763	
H43	-	SALIX	S, Y	-	sand	0.00	102	
H88	-	SALIX	S, Y	-	-	0.16	6,873	
H36	-	SALIX	S, Y, M, O	-	cobble-sand	0.02	814	
H89	-	SALIX	M	-	finer	0.00	62	
H90	-	SALIX	S, Y, O	-	finer	0.02	849	
H91	-	SALIX	M	-	finer	0.00	65	

Table H-1. Attribute Summary of Riparian Vegetation and Substrate along Hell Hole Reservoir Inflows and Shoreline (continued).

Corresponding Map Polygon Number ¹	Bank	Attribute				Notes	Area (acres)	Area (square feet)
		Dominant Species		Sub-Dominant Species	Dominant Substrate			
		Dominant Species Present ²	Structure ³					
H92	-	SALIX, POBAT	S, Y, M, O	-	finer	0.03	1,375	
H93	-	SALIX	S, Y, M	-	finer	0.13	5,823	
H94	-	SALIX	S, Y, M	-	finer	0.61	26,434	
H95	-	POBAT	M	-	bedrock-boulder	0.00	186	
H96	-	SALIX	M	-	finer	0.00	90	
H97	-	SALIX	S, Y, M	-	finer	0.01	411	
H98	-	SALIX	S, Y, M	-	finer	0.00	31	
H35	-	SALIX	Y, M	-	cobble-sand	0.25	11,025	
H37	-	ALINT	Y	-	-	0.00	198	
H99	-	SALIX	S, Y, M	-	finer-cobble	0.01	337	

¹ Map polygon numbers refer to the polygons labeled on the Map H-3. GIS shapefiles the riparian vegetation were overlain on contour maps of the bed and shoreline of Hell Hole Reservoir. Contour maps of the downstream (westernmost) portion of the reservoir were created using an interpolation of USGS 7.5 minute quadrangle contours. Contour maps of the upper (easternmost) portion of the reservoir were developed from topographic measurements collected by Air Maps USA in fall 2007 using aerial photogrammetric mapping techniques supported by ground control surveys.

² Species present:

Scientific Name	Common Name	Species Code	Scientific Name	Common Name	Species Code
<i>Agrostis oregonensis</i>	Oregon bentgrass	AGOR	<i>Equisetum laevigatum</i>	smooth scouring rush	EQLA
<i>Alnus rhombifolia</i>	white alder	ALRH2	<i>Gayophytum diffusum</i>	spreading ground smoke	GADI2
<i>Anaphalis margaritacea</i>	pearly everlasting	ANMA	<i>Pseudognaphalium canescens</i> (= <i>Gnaphalium canescens</i>)	wooly everlasting cudweed	GNCA2 (PSLU6)
<i>Aster sp.</i>	aster	ASTER sp.	<i>Pseudognaphalium ramosissimum</i> (= <i>Gnaphalium ramosissimum</i>)	pink cudweed	GNRA
<i>Brickellia californica</i>	brickellbush	BRCA3	<i>Heuchera micrantha</i>	crevice alumroot	HEMI7
<i>Carex athrostachya</i>	slender leaved sedge	CAAT3	<i>Hypericum perforatum</i>	Klamath weed	HYPE
<i>Calocedrus decurrens</i>	incense cedar	CADE27	<i>Juncus sp.</i>	rush	JUNCUS sp.
<i>Chenopodium botrys</i>	Jerusalem oak	CHBO2	<i>Juncus nevadensis</i>	Sierra rush	JUNE
<i>Cinna latifolia</i>	wood reedgrass	CILA2	<i>Juncus phaeocephalus var. paniculatus</i>	brown headed rush	JUPHP
<i>Cirsium vulgare</i>	bull thistle	CIVU	<i>Leersia oryzoides</i>	rice cutgrass	LEOR
<i>Coryza canadensis</i>	Canada horseweed	COCA5	<i>Lotus oblongifolius var. oblongifolius</i>	streambank trefoil	LOOB2
<i>Darmera peltata</i>	Indian rhubarb	DAPE	<i>Mellilotus officinalis</i> (= <i>Mellilotus alba</i>)	yellow sweetclover	MEOF
<i>Dichanthium acuminatum var. acuminatum</i>	western panicum	DIAC2	<i>Melica stricta</i>	rock melicgrass	MEST

Table H-1. Attribute Summary of Riparian Vegetation and Substrate along Hell Hole Reservoir Inflows and Shoreline (continued).

Scientific Name	Common Name	Species Code	Scientific Name	Common Name	Species Code
<i>Dryopteris arguta</i>	wood fern	DRAR3	<i>Diplacus aurantiacus</i> (= <i>Mimulus aurantiacus</i>)	sticky monkeyflower	MIAU
<i>Epilobium canum</i> ssp. <i>latifolium</i>	California fuchsia	EPCA3	<i>Mimulus cardinalis</i>	crimson monkeyflower	MICA3
<i>Epilobium ciliatum</i>	hairy willow herb	EPCI			
<i>Mimulus lewisii</i>	Lewis's monkeyflower	MILE2	<i>Quercus kelloggii</i>	California black oak	QUKE
<i>Mimulus moschatus</i>	musky monkeyflower	MIMO3	<i>Rostraria cristata</i>	Mediterranean hairgrass	ROCR3
<i>Pinus ponderosa</i>	ponderosa pine	PIPO	<i>Rorippa curvipes</i>	bluntleaf yellowcress	ROCU2
<i>Populus balsamifera</i> ssp. <i>trichocarpa</i>	black cottonwood	POBAT	<i>Salix lasiolepis</i> /spp.	arroyo willow	SALA6
<i>Potentilla glandulosa</i>	gland cinquefoil	POGL9	<i>Salix</i> sp.	willow	SALIX
<i>Polystichum kruckebergii</i>	Kruckeberg's sword fern	POKR	<i>Spiraea splendens</i> var. <i>splendens</i> (= <i>Spiraea densiflora</i>)	spiraea	SPSPS (SPDE)
<i>Pseudotsuga menziesii</i> var. <i>menziesii</i>	Douglas fir	PSME	<i>Verbascum thapsus</i>	wooly mullein	VETH
<i>Pteridium aquilinum</i> var. <i>pubescens</i>	bracken fern	PTAQP2	<i>Vitis californica</i>	California wild grape	VICA5
<i>Quercus chrysolepis</i>	canyon live oak	QUCH2	<i>Vulpia microstachys</i>	small fescue	VUMI
			<i>Woodwardia fimbriata</i>	giant chain fern	WOFI

³ Mapped for a sub-sample of the polygons.

Age Codes:

(S) Seedlings

(Y) Young: Shrubs with less than 10 stems per individual, or trees with diameters (diameter at breast height (DBH) less than 3 inches).

(M) Medium-Aged: Shrubs with between 10 and 60 stems per individual, trees with DBHs between 3 and 9 inches.

(O) Mature/Old: Shrubs with more than 60 stems per individual, trees with DBHs greater than 9 inches.

⁴ Only dominant species information was surveyed along the reservoir shoreline. Data on ages present and substrate were completed for a sub-sample of the polygons surveyed. Additional substrate information is provided in the AQ 9 - Geomorphology TSR (PCWA 2009).

Table H-2. Riparian Vegetation in the Study Area around Hell Hole Reservoir for the Existing Project¹.

Dominant Species	Corresponding Map Polygon Number ²	Area (acres)	Area (square feet)
Area 1: Below Maximum Normal Operating Water Surface Elevation (4,630 feet msl)			
Rubicon River Upstream from Hell Hole Reservoir			
Alder and Willow	UH47	0.00	159
none	UH42	0.17	7,350
none	UH41	0.29	12,541
none	UH43	0.19	8,249
none	UH44	0.17	7,490
none	UH45	0.10	4,480
none	UH46	0.13	5,852
none	UH48	0.07	3,155
none	UH49	0.03	1,292
Total none		1.16	50,409
Total Woody Riparian Vegetation Area 1 Rubicon River		0.00	159
Five Lakes Creek			
Alder	UH18	0.06	2,728
Alder and Black Cottonwood	UH12	0.02	736
Alder and Willow	UH07	0.04	1,609
Alder and Willow	UH19	0.15	6,636
Alder and Willow	UH23	0.05	2,210
Alder and Willow	UH25	0.06	2,503
Alder and Willow	UH28	0.08	3,669
Alder and Willow	UH29	0.21	8,944
Alder and Willow	UH30	0.06	2,528
Total Alder and Willow		0.65	28,100
Alder, Willow and Black Cottonwood	UH08	0.02	782
Alder, Willow and Black Cottonwood	UH16	0.10	4,419
Alder, Willow and Black Cottonwood	UH27	0.09	3,911
Total Alder, Willow, and Black Cottonwood		0.21	9,111
Black Cottonwood	UH13	0.01	634
Black Cottonwood	UH21	0.01	554
Black Cottonwood	UH24	0.06	2,619
Total Black Cottonwood		0.09	3,807
none	UH09	0.02	941
none	UH10	0.02	846
none	UH14	0.01	461
none	UH26	0.06	2,634
Total none		0.11	4,881
Willow	UH17	0.11	4,707
Willow	UH20	0.08	3,343
Total Willow		0.18	8,050
Willow and Black Cottonwood	UH11	0.02	1,009
Willow and Black Cottonwood	UH15	0.39	16,787
Total Willow and Black Cottonwood		0.41	17,796
Total Area 1 Woody Riparian Vegetation Five Lakes Creek		1.61	70,328

Table H-2. Riparian Vegetation in the Study Area around Hell Hole Reservoir for the Existing Project (continued).

Dominant Species	Corresponding Map Polygon Number ²	Area (acres)	Area (square feet)
Area 1: Below Maximum Normal Operating Water Surface Elevation (4,630 feet msl) (continued)			
Un-named Tributary			
Alder	UH36	0.03	1,232
California Wild Grape	UH32	0.19	8,372
California Wild Grape	UH34	0.09	3,989
Total California Wild Grape		0.28	12,361
none	UH35	0.09	4,067
none	UH37	0.06	2,617
none	UH39	0.16	6,854
Total None		0.31	13,538
Ponderosa Pine	UH31	0.03	1,406
Willow	UH33	0.09	3,794
Willow	UH40	0.55	23,903
Total Willow		0.64	27,698
Willow and California Wild Grape	UH38	0.07	3,175
Total Woody Riparian Vegetation Area 1 Un-named Tributary		0.77	33,510
Hell Hole Reservoir Shoreline			
Alder	H37	0.00	198
Alder and Willow	H42	0.41	17,994
Alder, Willow and Black Cottonwood	H52	0.13	5,479
Black Cottonwood	H38	0.04	1,696
Black Cottonwood	H50	0.01	641
Black Cottonwood	H67	0.01	456
Black Cottonwood	H95	0.00	186
Total Black Cottonwood		0.07	2,979
California Wild Grape	H11	0.02	1,042
California Wild Grape	H29	0.01	554
California Wild Grape	H30	0.05	2,389
California Wild Grape	H39	0.03	1,193
California Wild Grape	H63	0.05	1,986
California Wild Grape	H65	0.04	1,840
California Wild Grape	H66	0.04	1,919
California Wild Grape	H81	0.01	403
California Wild Grape	H82	0.02	724
California Wild Grape	H83	0.03	1,188
California Wild Grape	H84	0.01	447
Total California Wild Grape		0.31	13,684
Willow	H01	0.00	189
Willow	H04	0.24	10,654
Willow	H05	0.01	361
Willow	H06	0.01	361
Willow	H07	0.01	493
Willow	H08	0.01	302
Willow	H09	0.01	552
Willow	H10	0.02	804

Table H-2. Riparian Vegetation in the Study Area around Hell Hole Reservoir for the Existing Project (continued).

Dominant Species	Corresponding Map Polygon Number ²	Area (acres)	Area (square feet)
Area 1: Below Maximum Normal Operating Water Surface Elevation (4,630 feet msl) (continued)			
Willow	H13	0.10	4,378
Willow	H14	0.06	2,806
Willow	H15	0.00	179
Willow	H16	0.05	2,326
Willow	H17	0.08	3,286
Willow	H18	0.02	922
Willow	H19	0.01	414
Willow	H20	0.01	327
Willow	H21	0.01	340
Willow	H22	0.03	1,477
Willow	H23	0.01	288
Willow	H24	0.01	384
Willow	H25	0.01	283
Willow	H26	0.04	1,751
Willow	H27	0.34	14,676
Willow	H28	0.02	669
Willow	H33	0.03	1,100
Willow	H35	0.25	11,025
Willow	H36	0.02	814
Willow	H41	0.01	316
Willow	H43	0.00	102
Willow	H44	0.25	10,963
Willow	H45	0.10	4,530
Willow	H47	0.26	11,268
Willow	H48	0.02	662
Willow	H49	0.04	1,942
Willow	H51	0.02	824
Willow	H53	0.00	215
Willow	H54	0.01	242
Willow	H55	0.01	514
Willow	H56	0.01	290
Willow	H57	0.04	1,541
Willow	H58	0.05	2,141
Willow	H59	0.01	653
Willow	H60	0.37	15,956
Willow	H61	0.01	497
Willow	H62	0.01	556
Willow	H68	0.12	5,304
Willow	H69	0.05	2,066
Willow	H70	0.01	576
Willow	H71	0.02	677
Willow	H72	0.02	858
Willow	H73	0.01	399
Willow	H74	0.02	682

Table H-2. Riparian Vegetation in the Study Area around Hell Hole Reservoir for the Existing Project (continued).

Dominant Species	Corresponding Map Polygon Number ²	Area (acres)	Area (square feet)
Area 1: Below Maximum Normal Operating Water Surface Elevation (4,630 feet msl) (continued)			
Willow	H75	0.03	1,120
Willow	H76	0.01	457
Willow	H77	0.01	496
Willow	H78	0.02	1,070
Willow	H79	0.02	659
Willow	H80	0.02	795
Willow	H85	0.03	1,482
Willow	H87	0.02	763
Willow	H88	0.16	6,873
Willow	H89	0.00	62
Willow	H90	0.02	849
Willow	H91	0.00	65
Willow	H93	0.13	5,823
Willow	H94	0.61	26,434
Willow	H96	0.00	90
Willow	H97	0.01	411
Willow	H98	0.00	31
Willow	H99	0.01	337
Total Willow		3.97	172,754
Willow and Black Cottonwood	H02	0.10	4,514
Willow and Black Cottonwood	H03	0.42	18,186
Willow and Black Cottonwood	H12	0.10	4,438
Willow and Black Cottonwood	H32	0.18	8,009
Willow and Black Cottonwood	H34	0.01	341
Willow and Black Cottonwood	H64	0.15	6,541
Willow and Black Cottonwood	H92	0.03	1,375
Total Willow and Black Cottonwood		1.00	43,405
Willow, Black Cottonwood and California Wild Grape	H86	0.41	17,834
Total Woody Riparian Vegetation Area 1 Hell Hole Reservoir Shoreline		5.98	260,643
Total Woody Riparian Vegetation Area 1		8.37	364,640
Area 2: Between Maximum Normal Operating Water Surface Elevation (4,630 feet msl) and Maximum Flood Pool Elevation (4,640 feet msl)			
Rubicon River Upstream from Hell Hole Reservoir			
none	UH43	0.01	526
none	UH44	0.00	31
none	UH45	0.06	2,479
none	UH46	0.04	1,930
none	UH48	0.05	2,172
none	UH49	0.05	2,355
Total none		0.22	9,493
Total Woody Riparian Vegetation Area 2 Rubicon River		0.00	0
Five Lakes Creek			
Alder	UH03	0.01	464
Alder and Black Cottonwood	UH02	0.03	1,190

Table H-2. Riparian Vegetation in the Study Area around Hell Hole Reservoir for the Existing Project (continued).

Dominant Species	Corresponding Map Polygon Number ²	Area (acres)	Area (square feet)
Area 2: Between Maximum Normal Operating Water Surface Elevation (4,630 feet msl) and Maximum Flood Pool Elevation (4,640 feet msl) (continued)			
Alder and Willow	UH04	0.01	274
Alder and Willow	UH06	0.01	586
Alder and Willow	UH05	0.04	1,537
Alder and Willow	UH07	0.07	3,017
Total Alder and Willow		0.12	5,415
Alder, Willow and Black Cottonwood	UH08	0.04	1,592
Black Cottonwood	UH13	0.01	518
none	UH09	0.00	87
none	UH10	0.01	328
Total none		0.01	415
Willow and Black Cottonwood	UH11	0.00	171
Total Woody Riparian Vegetation Area 2 Five Lakes Creek		0.20	8,832
Un-named Tributary			
Ponderosa Pine	UH31	0.00	2
California Wild Grape	UH32	0.00	1
Total Woody Riparian Vegetation Area 2 Un-named Tributary		0.00	0
Hell Hole Reservoir Shoreline			
Alder and Willow	H42	0.03	1,219
Black Cottonwood	H67	0.00	4
California Wild Grape	H63	0.00	159
California Wild Grape	H66	0.03	1,207
California Wild Grape	H81	0.04	1,571
California Wild Grape	H84	0.01	384
Total California Wild Grape		0.08	3,322
Willow	H04	0.00	68
Willow	H17	0.01	228
Willow	H20	0.00	80
Willow	H45	0.01	575
Willow	H58	0.00	14
Willow	H73	0.01	422
Willow	H75	0.00	21
Total Willow		0.03	1,407
Willow, Black Cottonwood and California Wild Grape	H86	0.01	644
Total Woody Riparian Vegetation Area 2 Hell Hole Reservoir Shoreline		0.08	3,274
Total Woody Riparian Vegetation Area 2		0.28	12,106
Area 3: Above Maximum Flood Pool Elevation (4,640 feet msl)³			
Rubicon River Upstream from Hell Hole Reservoir			
Alder	UH53	0.00	187
Alder	UH52	0.00	179
Alder	UH51	0.00	144
Alder	UH55	0.01	576
Total Alder		0.02	1,086

Table H-2. Riparian Vegetation in the Study Area around Hell Hole Reservoir for the Existing Project (continued).

Dominant Species	Corresponding Map Polygon Number ²	Area (acres)	Area (square feet)
Area 3: Above Maximum Flood Pool Elevation (4,640 feet msl)³ (continued)			
none	UH46	0.00	145
none	UH48	0.06	2,554
none	UH49	0.05	2,262
Total none		0.11	4,961
Willow	UH50	0.00	207
Willow	UH54	0.02	1,012
Total Willow		0.03	1,218
Total Woody Riparian Vegetation Area 3 Rubicon River		0.05	2,304
Five Lakes Creek			
Alder	UH03	0.01	564
Alder and Black Cottonwood	UH02	0.05	2,068
Alder and Willow	UH05	0.01	264
Willow	UH01	0.00	172
Total Woody Riparian Vegetation Area 3 Five Lakes Creek		0.07	3,068
Hell Hole Reservoir Shoreline			
California Wild Grape	H81	0.00	7
Total Woody Riparian Vegetation Area 3 Hell Hole Reservoir Shoreline		0.00	0
Total Woody Riparian Vegetation Area 3		0.12	5,372

¹ Refer to Schematic 1 in the text. No riparian vegetation was mapped in Area 4.

² Map polygon numbers refer to the polygons labeled on the MapH-3.

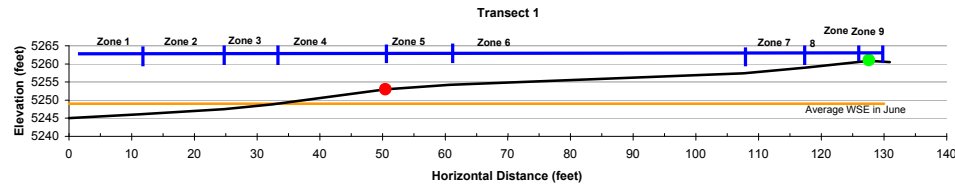
³ No vegetation was present in Area 3 along the un-named tributary.

FIGURES

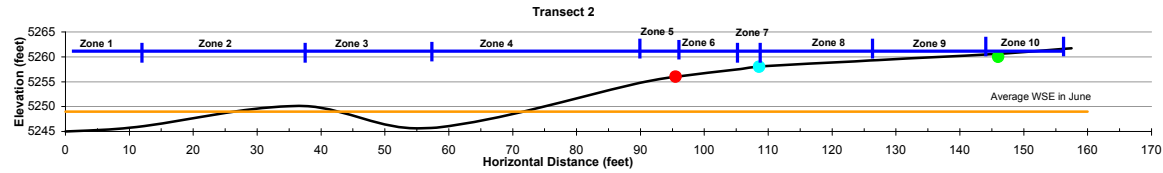
Figure H-1. Plant Community Zones and Substrate Characteristics along Surveyed Transects around French Meadows Reservoir.

Note: Maximum operating pool elevation is 5,262 feet.

Key for Rooted Elevations of Species: ● Willows ● Alders ● Upland Species

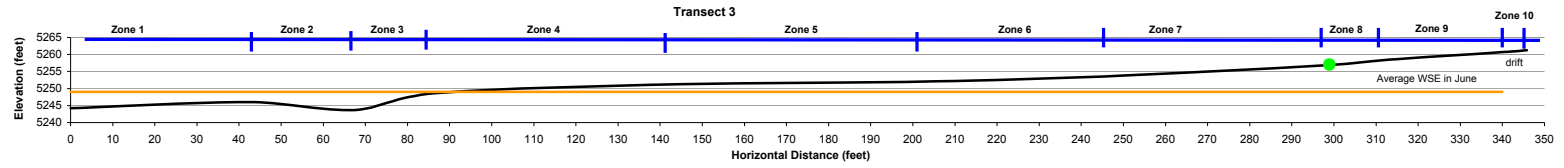


Zone	Plant Community Classification ²	Dominant Species ³ (>25% cover)	Subdominant Species	Substrate	Zone start (ft)	Zone end (ft)
1	Bedrock and Boulder Alliance Group	/	EQAR, GNPA	boulder, cobble	0.0	11.3
2	Unconsolidated Materials Alliance Group	/	EQAR	cobble, gravel	11.3	24.8
3	Unconsolidated Materials Alliance Group	/	AGOR, GNPA, GNLU	cobble, silt, fines	24.8	32.5
4	Mid elevation Miscellaneous Riparian Graminoid Alliance Group	AGOR	GNPA, PLMA2, AGST2	gravel, cobble	32.5	50.5
5	Mid elevation Miscellaneous Riparian Graminoid Alliance Group	SALA3	AGST2, AGOR	silt/fines, gravel	50.5	60.7
6	Mid elevation Miscellaneous Riparian Graminoid Alliance Group	/	AGOR, AGST2, GNPA, moss	silt/fines, gravel	60.7	107.6
7	Arroyo willow/Douglas' sagewort Plant Association	/	AGST2	fines/silt	107.6	117.6
8	Lodgepole pine/Sedge Plant Association	/	PTAQP2	bedrock, fines; driftwood	117.6	127.6
9	Lodgepole pine/Sedge Plant Association	PIPO, PTAQP2	/	boulder, fines; driftwood, litter/duff	127.6	130.9



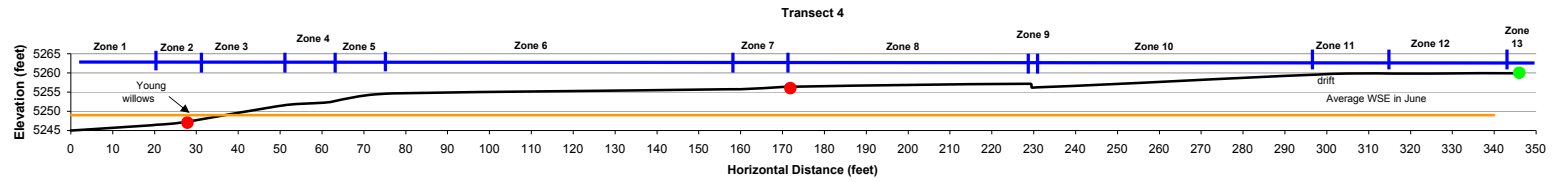
Zone	Plant Community Classification ²	Dominant Species ³ (>25% cover)	Subdominant Species	Substrate	Zone start (ft)	Zone end (ft)
1	Unconsolidated Materials Alliance Group	/	/	gravel, loose sand	0.0	11.2
2	Bedrock and Boulder Alliance Group	/	GNCA2	bedrock	11.2	36.6
3	Bedrock and Boulder Alliance Group	/	MILE2, Vegetation in cracks	bedrock, cobble	36.6	57.3
4	Unconsolidated Materials Alliance Group	/	GNPA, JUPHP <1% vegetation	cobble, boulder	57.3	89.9
5	Unconsolidated Materials Alliance Group	/	AGOR	fines	89.9	95.5
6	Mid elevation Miscellaneous Riparian Graminoid Alliance Group	SALA3	PRVU, AGOR		95.5	105.6
7	Mid elevation Miscellaneous Riparian Graminoid Alliance Group	AGOR	PRVU	soil, fines	105.6	108.3
8	Mid elevation Miscellaneous Riparian Graminoid Alliance Group	ALINT, AGOR	EPCI, CAAN15, MUF12	soil, fines	108.3	126.0
9	Thinleaf alder Alliance	PICO	LOOB2, PTAQP2, ASOCY	fines, duff	126.0	146.3
10	Thinleaf alder Alliance	ABCO	PTAQP2, SYMO, THFE	fines, duff	146.3	157.5

Figure H-1. Plant Community Zones and Substrate Characteristics along Surveyed Transects around French Meadows Reservoir¹.



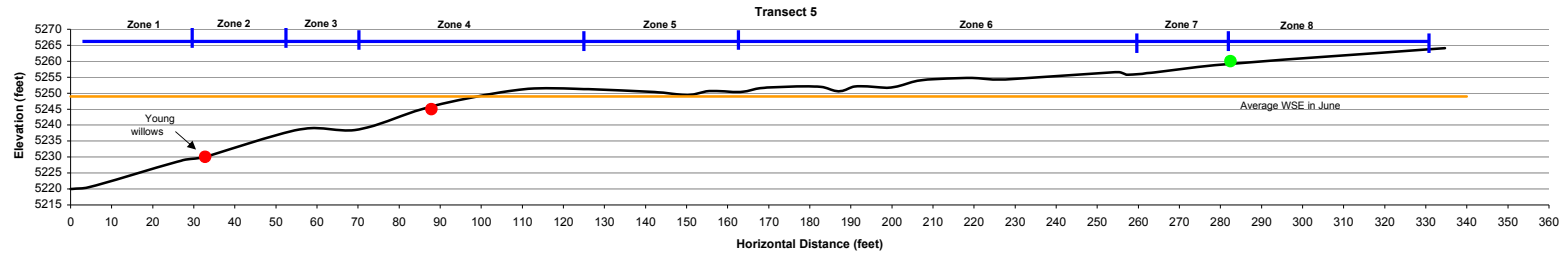
Zone	Plant Community Classification ²	Dominant Species ³ (>25% cover)	Subdominant Species	Substrate	Zone start (ft)	Zone end (ft)
1	Unconsolidated Materials Alliance Group	/	EQAR	cobble, gravel	0.0	41.7
2	Unconsolidated Materials Alliance Group	/	JUPHP, GNPA, EPCI	fines, silt, boulder	41.7	66.9
3	Unconsolidated Materials Alliance Group	/	ELPA, SALA3, ELPA, POAR11, germinants	fines, silt, boulder	66.9	86.6
4	Unconsolidated Materials Alliance Group	/	VETH, AGOR, GNPA, SPRU, LOPU3, AGST2, HOJU	fines, silt	86.6	141.1
5	Mid elevation Miscellaneous Riparian Graminoid Alliance Group	AGOR	CALE9, CAAN15, GNPA, HOMU	fines	141.1	201.8
6	Mid elevation Miscellaneous Riparian Graminoid Alliance Group	/	PODO4, SALA3	fines	201.8	248.4
7	Mid elevation Miscellaneous Riparian Graminoid Alliance Group	ASOCY, AGOR	AGOR, ASOCY, PRVU, Moss, CAAN15	fines	248.4	298.9
8	Lodgepole pine/Sedge Plant Association	PICO	ASOCY, AGOR, PRVU	fines, duff	298.9	313.3
9	Lodgepole pine/Sedge Plant Association	PICO	ARDO3, PTAQP2, bracket drift line	fines, duff	313.3	341.2
10	Lodgepole pine/Sedge Plant Association	PICO	PTAQP2, SYMO, past drift line	duff, fines	341.2	345.8

Figure H-1. Plant Community Zones and Substrate Characteristics along Surveyed Transects around French Meadows Reservoir¹.



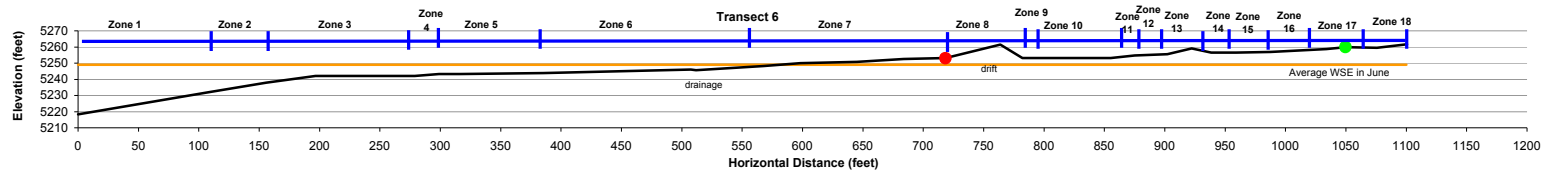
Zone	Plant Community Classification ²	Dominant Species ³ (>25% cover)	Subdominant Species	Substrate	Zone start (ft)	Zone end (ft)
1	Unconsolidated Materials Alliance Group	/	GNPA, EQAR, SALA3 (small), SAEX (small)	gravel, fines, cobble	0.0	19.7
2	Blister Sedge Plant Association	CAVEV2	ELPA	fines, cobble	19.7	28.9
3	Blister Sedge Plant Association	SALA3	AGOR, CAVEV2, PLER3	fines, cobble	28.9	50.5
4	Blister Sedge Plant Association	CAVEV2	AGOR, SAME2 (small)		50.5	62.0
5	Blister Sedge Plant Association	SALA3	AGOR, CAVEV2, GNPA		62.0	75.1
6	Mid elevation Miscellaneous Riparian Graminoid Alliance Group	AGOR	PRVU, GNPA, ASOCY, PLER3, AGST2, GNLU, CAAN15, VETH, HYAN2	fines	75.1	158.8
7	Douglas' knotweed-Groundsmoke Plant Association	SALA3	PRVU, GNPA, ASOCY, PLER3, AGST2, GNLU, CAAN15, VETH, HYAN2	fines	158.8	171.9
8	Douglas' knotweed-Groundsmoke Plant Association	/	PRVU, GNPA, ASOCY, PLER3, AGST2, GNLU, CAAN15, VETH, HYAN2	fines	171.9	229.3
9	Douglas' knotweed-Groundsmoke Plant Association	/	STAJ, GAER2, PRVU, GNPA, ASOCY, PLER3, AGST2, GNLU, CAAN15, VETH, HYAN2	fines	229.3	229.7
10	Douglas' knotweed-Groundsmoke Plant Association	/	STAJ, GAER2, PRVU, GNPA, ASOCY, PLER3, AGST2, GNLU, CAAN15, VETH, HYAN2	fines	229.7	299.5
11	Douglas' knotweed-Groundsmoke Plant Association		AGST2, GADI2, RUAC3, CAAT3	drift	299.5	317.3
12	Lodgepole pine/Sedge Plant Association	SALA3	AGST2, CAAT3	drift	317.3	346.8
13	Lodgepole pine/Sedge Plant Association	PICO			346.8	346.8+

Figure H-1. Plant Community Zones and Substrate Characteristics along Surveyed Transects around French Meadows Reservoir¹.



Zone	Plant Community Classification ²	Dominant Species ³ (>25% cover)	Subdominant Species	Substrate	Zone start (ft)	Zone end (ft)
1	Bedrock and Boulder Alliance Group	/		large boulder, fine sand, gravel	0.0	33.5
2	Unconsolidated Materials Alliance Group	/	SAEX seedlings	fine silt/sand	33.5	55.8
3	Narrowleaf willow/Douglas' sageswort Plant Association			boulder, fine sand	55.8	70.2
4	Narrowleaf willow/Douglas' sageswort Plant Association	SAEX SAME2	Thatch, 5-10%	bedrock, fine sand, boulder	70.2	125.0
5	Miscellaneous willow Alliance Group	SAEX SAME2	AGOR, GNPA, PLER3	finer, gravel, bedrocks	125.0	163.1
6	Mid elevation Miscellaneous Riparian Graminoid Alliance Group	SALU AGOR	LOC06, BOMU, Moss, PLER3, PRVU, AGST2, ASOCYY	finer	163.1	263.1
7	Mid elevation Miscellaneous Riparian Graminoid Alliance Group	/	ASOCY, AGST2, GNCA2	finer	263.1	282.5
8	Unclassified Woodland or Forest Community	PIJE CECO	ASOCY, SYMO	finer, leaf litter, boulder	282.5	334.6

Figure H-1. Plant Community Zones and Substrate Characteristics along Surveyed Transects around French Meadows Reservoir¹.



Zone	Plant Community Classification ²	Dominant Species ³ (>25% cover)	Subdominant Species	Substrate	Zone start (ft)	Zone end (ft)
1	Unconsolidated Materials Alliance Group	/		finer, boulders	0.0	106.3
2	Unconsolidated Materials Alliance Group	/	SPRU, CAUM2, ROCU2	finer with boulder outcrop	106.3	155.8
3	Douglas' knotweed-Groundsmoke Plant Association	SPRU	GNPA, HYAN2, ROCU2	finer with boulder outcrop	155.8	278.9
4	Douglas' knotweed-Groundsmoke Plant Association	/	AMCA	finer	278.9	298.9
5	Douglas' knotweed-Groundsmoke Plant Association	/	AMCA, GNPA, PODO4, SPRU, CAUM2, LOMI, MIME, POAR11	finer with some gravel	298.9	385.2
6	Douglas' knotweed-Groundsmoke Plant Association	SPRU	CAUM2, PODO4, SALA3, LOMI, LONE4	finer with interspersed cobble, infrequent boulders	385.2	567.6
7	Douglas' knotweed-Groundsmoke Plant Association	/	CAUM2, HYAN2, GNPA, AGST2, GADI2, CAVEV2	gravel/ cobble, finer	567.6	718.5
8	Mid elevation Miscellaneous Riparian Graminoid Alliance Group	AGST2, AGOR, MUF12	GNPA, SPRU	finer	718.5	782.2
9	Mid elevation Miscellaneous Riparian Graminoid Alliance Group	SAEX	SALA3, SAEX, MUF12, AGOR, AGST2, GNPA	finer (1 boulder)	782.2	797.3
10	Mid elevation Miscellaneous Riparian Graminoid Alliance Group	AGST2, SAEX	GNPA, AGOR	finer	797.3	855.3
11	Mid elevation Miscellaneous Riparian Graminoid Alliance Group	SAEX, AGST2	MUF12	gravel/cobble	855.3	875.0
12	Mid elevation Miscellaneous Riparian Graminoid Alliance Group	/	CAUM2, AGST2	gravel/cobble (boulder)	875.0	902.2
13	Mid elevation Miscellaneous Riparian Graminoid Alliance Group	SALA3	AGST2, AGOR, CAAT3	boulder, finer	902.2	938.3
14	Mid elevation Miscellaneous Riparian Graminoid Alliance Group	/	AGST2, AGOR, MUF12, Moss, LONE4, GNPA, GNCA2		938.3	959.0
15	Narrowleaf willow/Douglas' sagewort Plant Association	SAEX, MUF12	AGST2	finer	959.0	987.5
16	Mid elevation Miscellaneous Riparian Graminoid Alliance Group	/	MUF12, AGST2, PLLA, GILE	finer, duff	987.5	1033.8
17	Mid elevation Miscellaneous Riparian Graminoid Alliance Group	/	AGST2, ASOCYY, PLLA, VETH, GNPA, LOCO6	finer, duff	1033.8	1075.8
18	Lodgepole pine/Sedge Plant Association	PICO, PIJE	RUAC3, HYPE, PHLE3		1075.8	1101.0

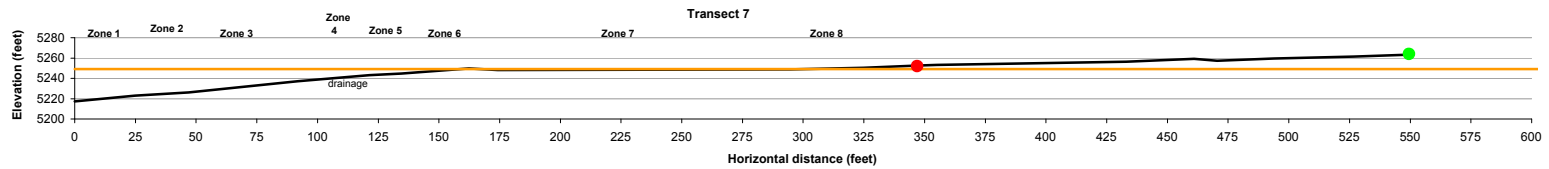
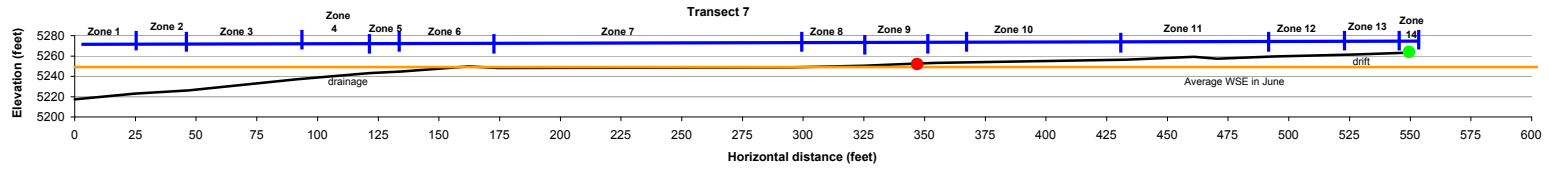
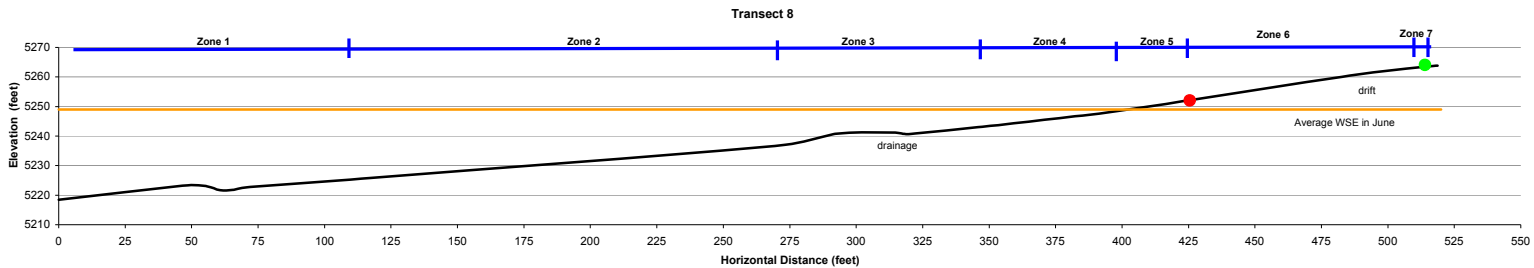


Figure H-1. Plant Community Zones and Substrate Characteristics along Surveyed Transects around French Meadows Reservoir¹.

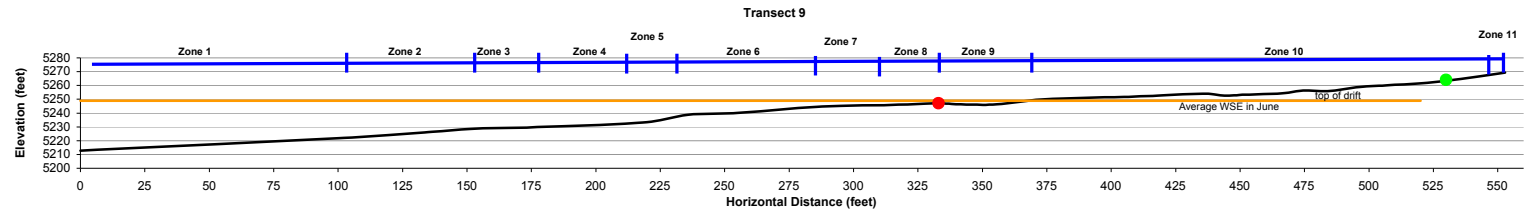


Zone	Plant Community Classification ²	Dominant Species ³ (>25% cover)	Subdominant Species	Substrate	Zone start (ft)	Zone end (ft)
1	Unconsolidated Materials Alliance Group	/		cobble, boulder	0.0	24.9
2	Unconsolidated Materials Alliance Group	/	Forb cotyledons	finer	24.9	46.9
3	Unconsolidated Materials Alliance Group	/		cobble	46.9	91.9
4	Unconsolidated Materials Alliance Group	/	AGOR	cobble	91.9	121.4
5	Douglas' knotweed-Groundsmoke Plant Association	PODO4	VETH	cobble, gravel	121.4	134.5
6	Douglas' knotweed-Groundsmoke Plant Association	/	RUAC3, GNPA, EQAR, VETH, AGOR	cobble, gravel	134.5	174.2
7	Douglas' knotweed-Groundsmoke Plant Association	/	VETH, RUAC3, SPRU, CAUM2	gravel, cobble	174.2	294.6
8	Douglas' knotweed-Groundsmoke Plant Association	/	PODO4, AGOR, CAUM2, GNPA, SPRU	sand, gravel	294.6	324.8
9	Narrowleaf willow/ Douglas' sagewort Plant Association	SAEX	AGST2, GNPA	gravel, sand	324.8	355.0
10	Narrowleaf willow/ Douglas' sagewort Plant Association	/	AGOR, SPRU, GNPA, PLLA	gravel, sand	355.0	433.1
11	Narrowleaf willow/ Douglas' sagewort Plant Association	SALA3 SAEX	AGOR, PLLA, CAVEV2	gravel, sand	433.1	493.8
12	Mid elevation Miscellaneous Riparian Graminoid Alliance Group	CAPR8 AGST2	PRVU, moss	sand, gravel, bottom of drift line	493.8	526.6
13	Mid elevation Miscellaneous Riparian Graminoid Alliance Group	/	AGST2, P IJE/ CADE2727 overhang	litter, top of drift line	526.6	549.5
14	White fir-incense cedar/Arrowleaf groundsel Plant Association	PLJE CADE2727	PHLE3, ASBO2, LANEN, Delphinium sp., AGFO	finer, litter	549.5	551.2

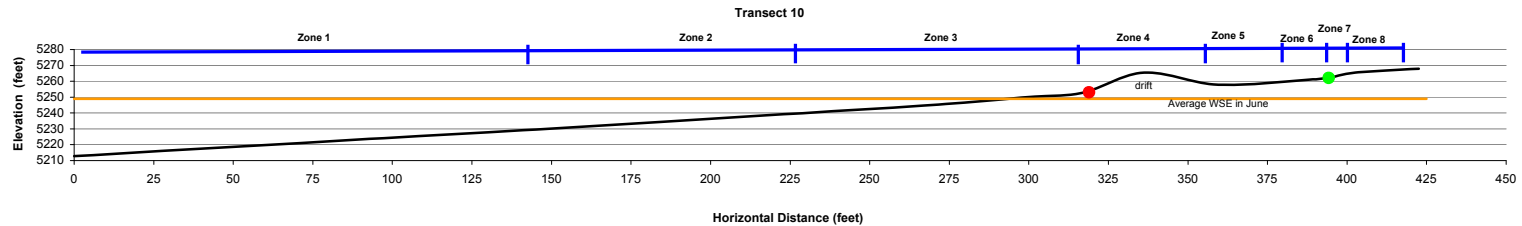


Zone	Plant Community Classification ²	Dominant Species ³ (>25% cover)	Subdominant Species	Substrate	Zone start (ft)	Zone end (ft)
1	Unconsolidated Materials Alliance Group	/		cobble, finer	0.0	113.8
2	Unconsolidated Materials Alliance Group	/	AGOR, AMCA <<<<1%	cobble, finer	113.8	269.4
3	Unconsolidated Materials Alliance Group	/	AGOR	cobble, gravel	269.4	346.1
4	Douglas' knotweed-Groundsmoke Plant Association	PODO4	VETH, SPRU, AGOR	cobble, gravel	346.1	394.7
5	Douglas' knotweed-Groundsmoke Plant Association	/	VETH, CAUM2, LOMI, AGOR	cobble, gravel	394.7	425.5
6	Narrowleaf willow/Douglas' sagewort Plant Association	SAEX	VETH, AGOR, LOMI	cobble, gravel	425.5	514.4
7	White fir-incense cedar/Arrowleaf groundsel Plant Association	PICO CADE27	CAOC6	cobble, litter	514.4	518.7

Figure H-1. Plant Community Zones and Substrate Characteristics along Surveyed Transects around French Meadows Reservoir¹.



Zone	Plant Community Classification ²	Dominant Species ³ (>25% cover)	Subdominant Species	Substrate	Zone start (ft)	Zone end (ft)
1	Unconsolidated Materials Alliance Group	/		cobble, gravel	0.0	102.4
2	Unconsolidated Materials Alliance Group	/		gravel, cobble, boulder	102.4	153.9
3	Unconsolidated Materials Alliance Group	/			153.9	175.2
4	Unconsolidated Materials Alliance Group	/	DIAC2	silt, cobble	175.2	218.2
5	Unconsolidated Materials Alliance Group	/			218.2	235.6
6	Unconsolidated Materials Alliance Group	/	CHBO2, DIAC2, VETH, ROOU, GNPA	cobble, boulder	235.6	287.7
7	Mid elevation Miscellaneous Riparian Graminoid Alliance Group	DIAC2	GNCA2, VETH, GAER2	cobble, gravel	287.7	314.6
8	Douglas' knotweed-Groundsmoke Plant Association	VETH	DIAC2, CAUM2, GAER2, GNCA2		314.6	337.9
9	Narrowleaf willow/Douglas' sagewort Plant Association	SAEX	CAUM2		337.9	373.0
10	Narrowleaf willow/Douglas' sagewort Plant Association	SAEX		leaf litter, duff, cobble, gravel, silt, fine sand, boulder	373.0	549.9
11	White fir-incense cedar/Arrowleaf groundsel Plant Association	CADE2/27 ABCO	MOGL, CEIN3	boulder, gravel	549.9	556.1



Zone	Plant Community Classification ²	Dominant Species ³ (>25% cover)	Subdominant Species	Substrate	Zone start (ft)	Zone end (ft)
1	Unconsolidated Materials Alliance Group	/		gravel, Coarse sand with cobble, boulder	0.0	141.1
2	Unconsolidated Materials Alliance Group	/	DIAC2, CHBO2	cobble, gravel, m sand, boulder	141.1	225.1
3	Mid elevation Miscellaneous Riparian Graminoid Alliance Group	AGOR	ROCU2	cobble, boulder, gravel	225.1	317.9
4	Shining willow/Common horsetail Plant Association	SALU	DIAC2, CAPR8	gravel, cobble	317.9	359.6
5	Mid elevation Miscellaneous Riparian Graminoid Alliance Group	/	CAPR8, VETH, AGOR	gravel, cobble	359.6	388.1
6	Mid elevation Miscellaneous Riparian Graminoid Alliance Group	/	AGOR	cobble, gravel	388.1	394.4
7	White fir-incense cedar/Arrowleaf groundsel Plant Association	ABCO	PTAQP2, SYMO, CECO	drift, duff, large boulders at edge	394.4	402.6
8	White fir-incense cedar/Arrowleaf groundsel Plant Association	ABCO	PTAQP2, SYMO, CECO	litter, duff	402.6	421.6

¹ Reservoir WSEs dropped by approximately two feet (5,220.8 feet to 5,212.8 feet msl) between the dates of the surveys (August 24, 2007 to September 13, 2007). Flows in the Middle Fork American River into French Meadows Reservoir were less than 1 cfs at the time of the survey.

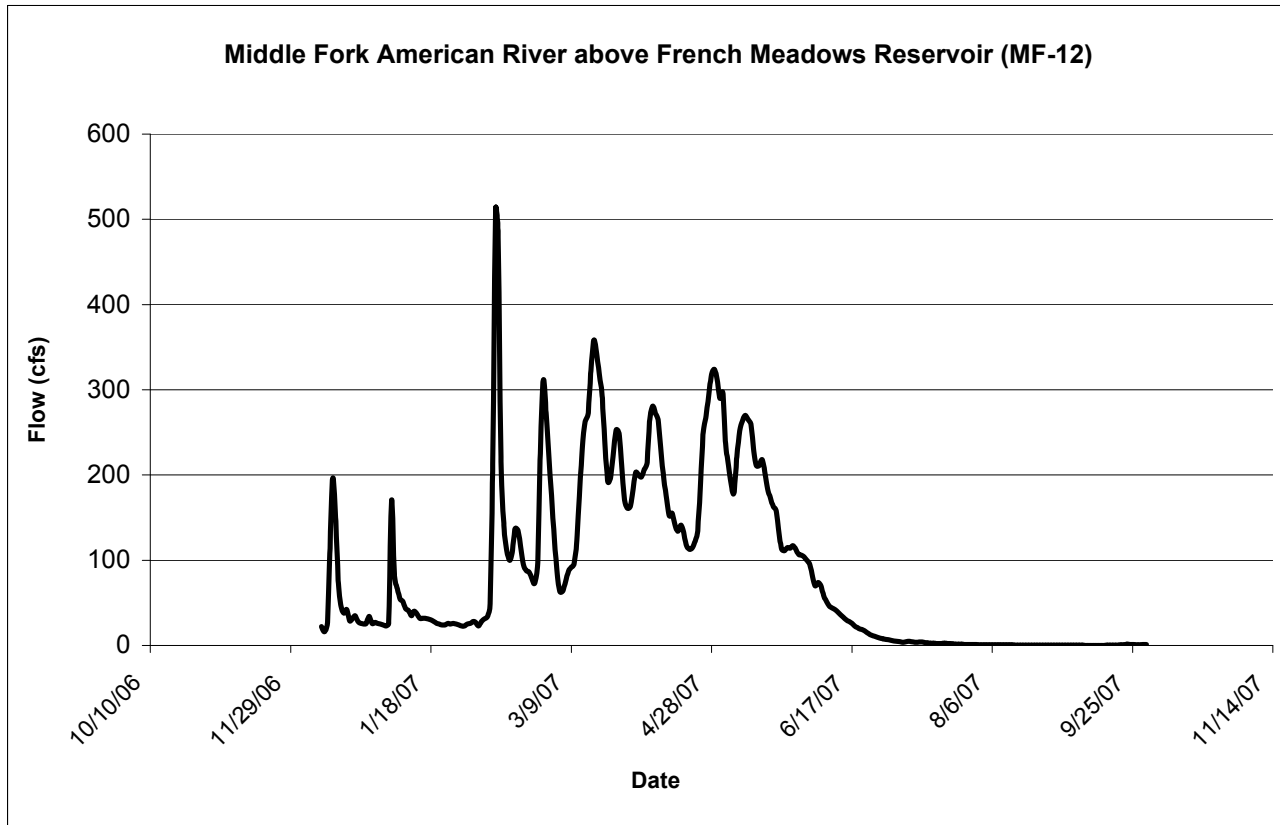
² Community Classifications developed using Potter (2005) from ENTRIX field data collected along the line-intercept.

Figure H-1. Plant Community Zones and Substrate Characteristics along Surveyed Transects around French Meadows Reservoir¹.

³ Species Present

Scientific Name	Common Name	Species Code	Scientific Name	Common Name	Species Code	Scientific Name	Common Name	Species Code
<i>Abies concolor</i>	white fir	ABCO	<i>Eleocharis pachycarpa</i>	black sand spike rush	ELPA	<i>Phalaris lemmonii</i>	Lemmon's canary grass	PHLE3
<i>Agrostis oregonensis</i>	Oregon bentgrass	AGOR	<i>Eriophorum ciliatum</i>	mary willow herb	EPCI	<i>Pinus contorta</i>	Lodgepole pine	PICO
<i>Agrostis stolonifera</i>	creeping bent grass	AGST2	<i>Equisetum arvense</i>	common horsetail	EQAR	<i>Pinus jeffreyi</i>	Jeffrey pine	PLJE
<i>Alnus incana ssp. tenuifolia</i>	mountain alder	ALINT	<i>Gayophytum diffusum</i>	spreading ground smoke	GADI2	<i>Pinus ponderosa</i>	ponderosa pine	PIPO
<i>Amaranthus californicus</i>	California pigweed	AMCA	<i>Gayophytum eriospermum</i>	Coville's ground smoke	GAER2	<i>Plantago erecta</i>	California plantain	PLER3
<i>Aquilegia formosa</i>	western columbine	AQFO	<i>Navaretia leptalea (=Gilia leptalea)</i>	Bridge's gilia	NALEL2 (GLE)	<i>Plantago lanceolata</i>	English plantain	PLLA
<i>Artemisia douglasiana</i>	Douglas' sagewort (mugwort)	ARDO3	<i>Pseudognaphalium canescens (=Gnaphalium canescens)</i>	woolly everlasting cudweed	GNCA2 (PSLU6)	<i>Plantago major</i>	common plantain (big plantain)	PLMA2
<i>Astragalus bolanderi</i>	Bolander's milkvetch	ASBO2	<i>Juncus phaeocephalus var. paniculatus</i>	brown headed rush	JUPHP	<i>Polygonum arenastrum</i>	dooryard knotweed	POAR11
<i>Symphoricarpos spathulatum var. yosemitanum (=Aster occidentalis)</i>	mountain aster	SYSPS (ASOCY)	<i>Pseudognaphalium luteoalbum (=Gnaphalium luteoalbum)</i>	everlasting cudweed	PSLU6 (GNLU)	<i>Polygonum douglasii</i>	Douglas' knotweed	PODO4
<i>Botrychium multifidum</i>	broadleaf grapefern	BOMU	<i>Gnaphalium palustre</i>	western marsh cudweed	GNPA	<i>Prunella vulgaris</i>	self-heal	PRVU
<i>Carex angustata</i>	widefruit sedge	CAAN15	<i>Hordeum jubatum</i>	foxtail barley	HOJU	<i>Pteridium aquilinum var. pubescens</i>	bracken fern	PTAQ2
<i>Carex athrostachya</i>	slender leaved sedge	CAAT3	<i>Hordeum murinum</i>	barley	HOMU	<i>Rorippa curvipes</i>	bluntleaf yellowcress	ROCU2
<i>Calocedrus decurrens</i>	incense cedar	CADE27	<i>Hypericum anagalloides</i>	tinker's penny	HYAN2	<i>Rumex acetosella</i>	sheep sorrel	RUAC3
<i>Carex leporinella</i>	Sierra hare sedge	CALE9	<i>Hypericum perforatum</i>	Klamath weed	HYPE	<i>Salix exigua</i>	narrow leaf willow	SAEX
<i>Carex preslii</i>	Presl's sedge	CAPR8	<i>Lathyrus nevadensis var. nevadensis</i>	Sierra Nevada pea	LANEN	<i>Salix laevigata</i>	red willow	SALA3
<i>Cistanthe umbellata (=Calyptidium umbellatum)</i>	pussypaws	CIUMC (CAUM2)	<i>Lotus corniculatus</i>	bird's foot trefoil	LOCO6	<i>Salix lucida</i>	shining willow	SALU
<i>Carex vesicaria var. vesicaria</i>	blister sedge	CAVEV2	<i>Lotus micranthus</i>	small-flowered trefoil	LOMI	<i>Salix exigua/Salix melanopsis</i>	dusky willow	SAME2
<i>Ceanothus cordulatus</i>	mountain whitethorn	CECO	<i>Lotus nevadensis</i>	Sierra Nevada lotus	LONE4	<i>Spergularia rubra</i>	purple sand spurry	SPRU
<i>Ceanothus integerrimus</i>	deerbrush	CEIN3	<i>Lotus oblongifolius var. oblongifolius</i>	streambank trefoil	LOOB2	<i>Stachys ajugoides</i>	hedge nettle	STAJ
<i>Chenopodium botrys</i>	Jerusalem oak	CHBO2	<i>Lotus unifoliolatus var. unifoliolatus (=Lotus purshianus var. purshianus)</i>	Spanish clover	LOUNU (LOPU3)	<i>Symphoricarpos mollis</i>	creeping snowberry	SYMO
<i>Dichanthelium acuminatum var. acuminatum</i>	western panicum	DIAC2	<i>Monardella glauca</i>	monardella	MOGL	<i>Thalictrum fendleri</i>	Fendler's meadow rue	THFE
			<i>Muhlenbergia filiformis</i>	slender muhly	MUF12	<i>Verbascum thapsus</i>	wooly mullein	VETH

Figure H-2. Middle Fork American River Flows above French Meadows Reservoir (December 2006 to October 2007)¹.



¹ This gaging station (MF-12) has only been in operation a short period of time (since December 2006).

Figure H-3. French Meadows Reservoir Water Surface Elevations During Water Year 2007.

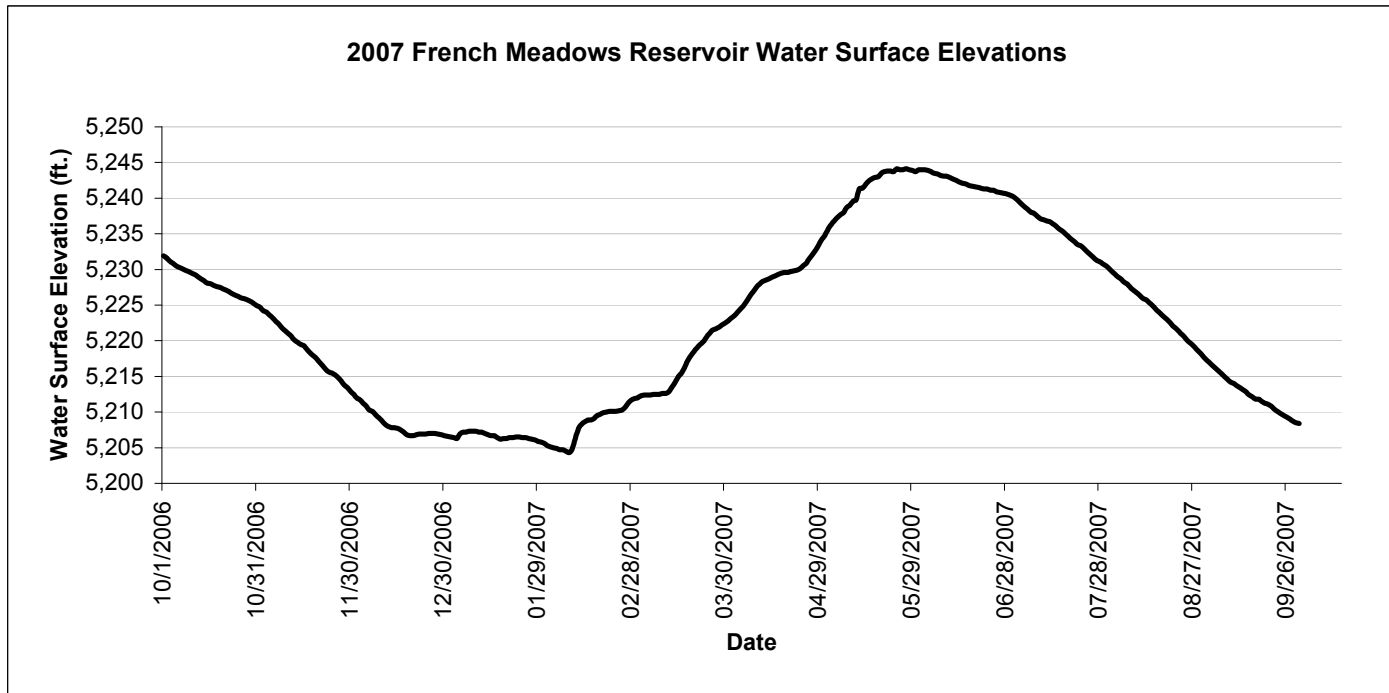
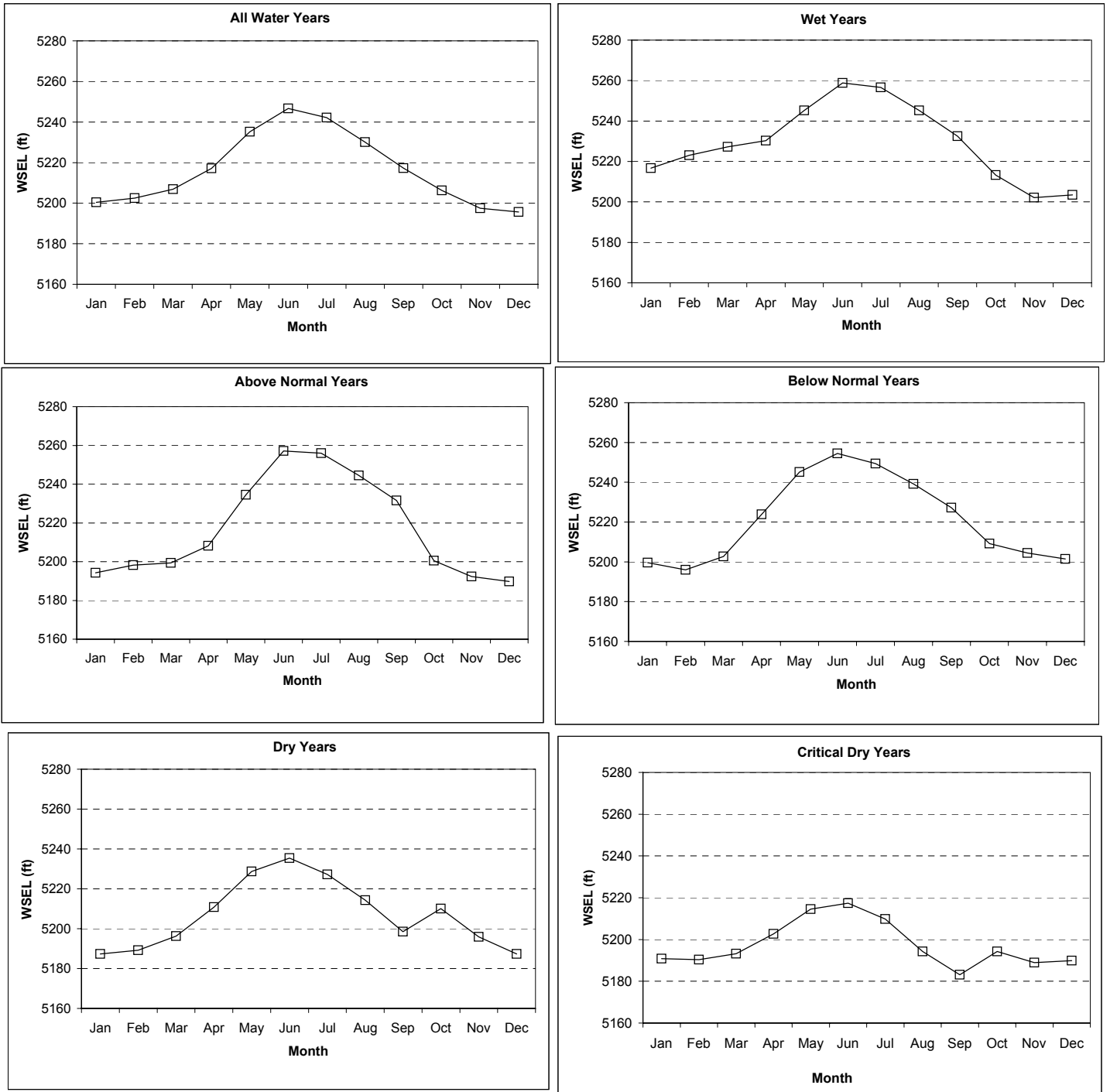
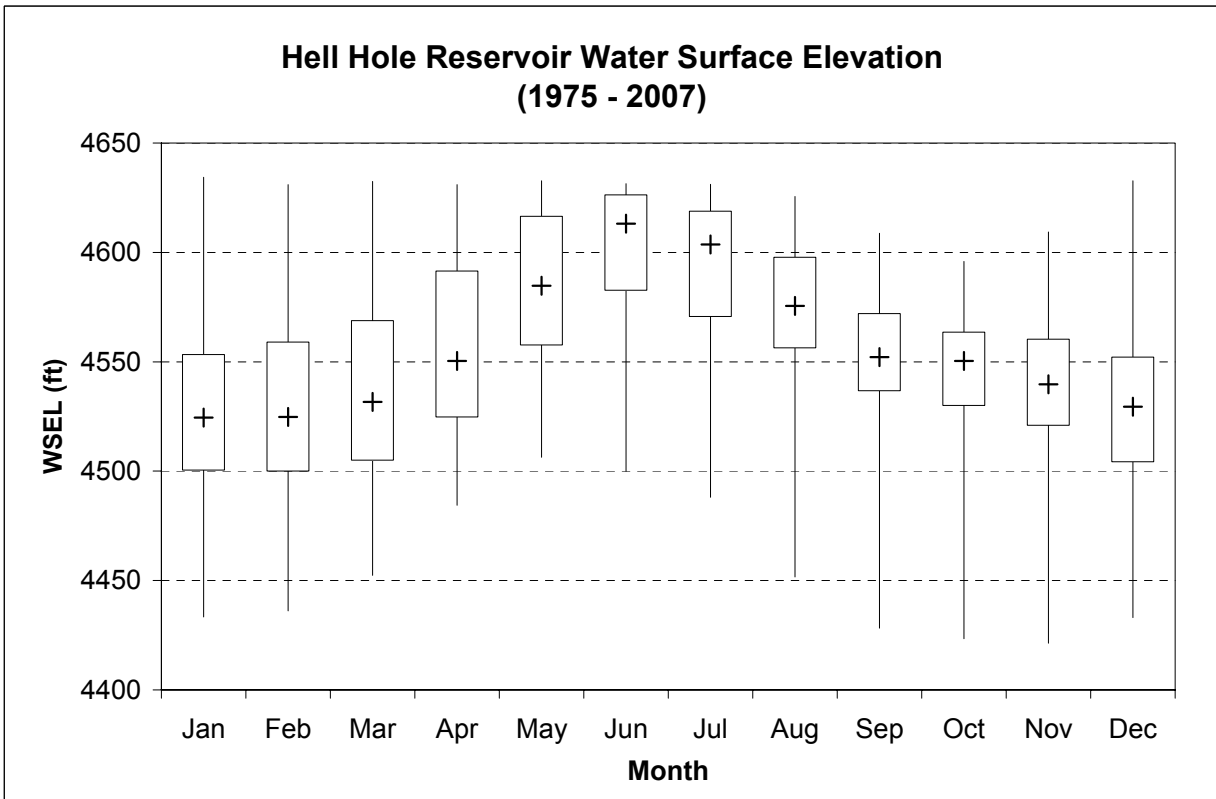
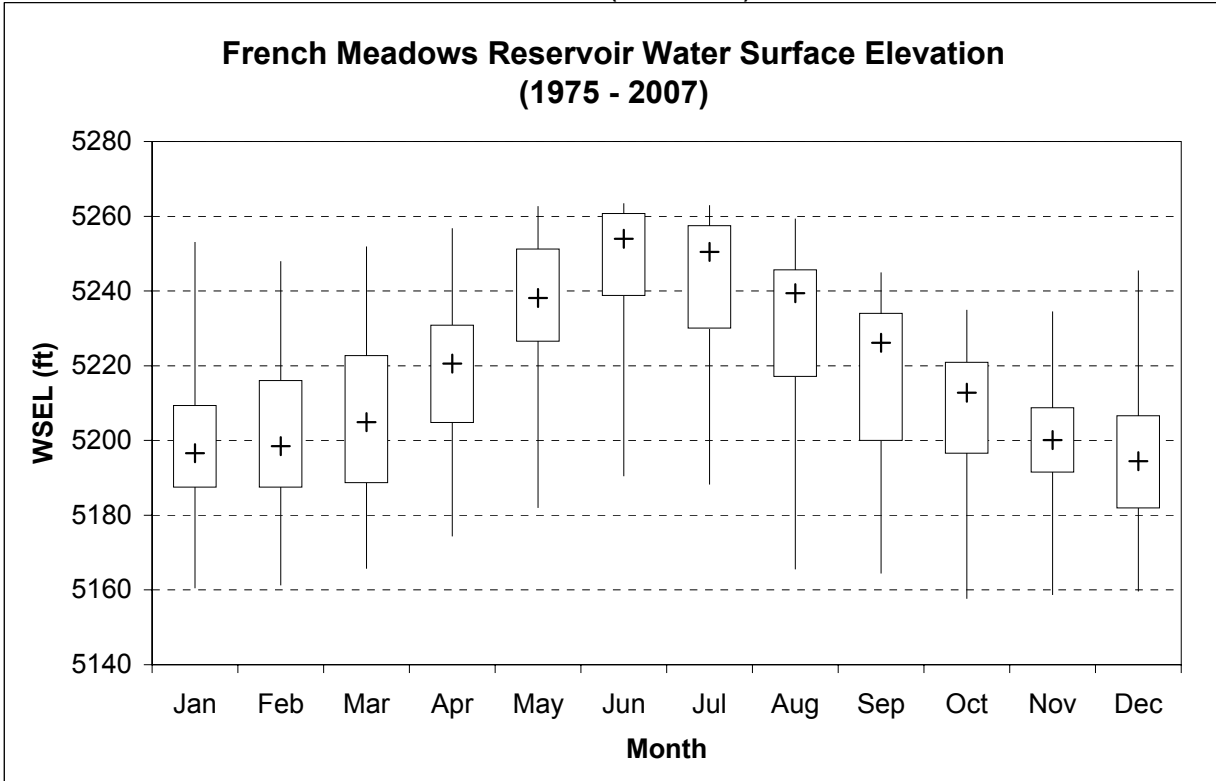


Figure H-4. French Meadows Reservoir Annual and Inter-annual Fluctuations in Water Surface Elevations (1975 – 2007).



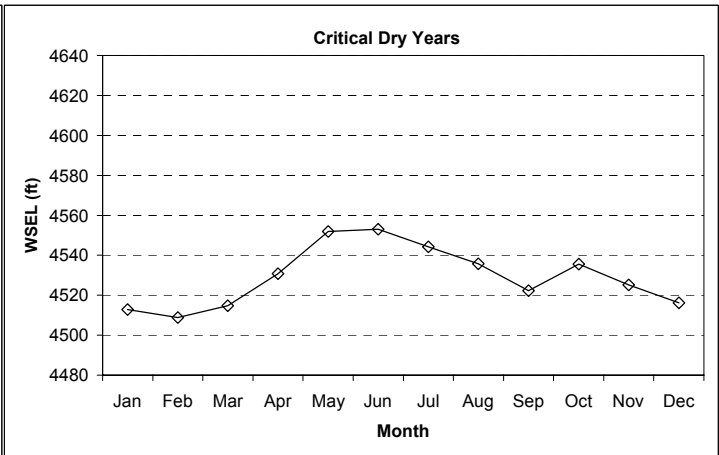
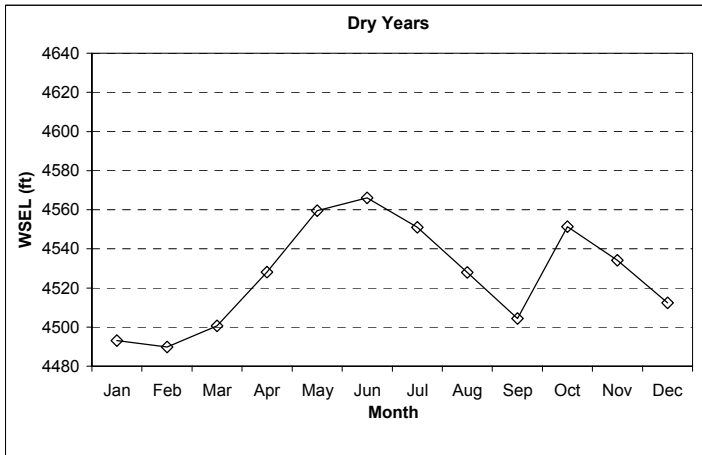
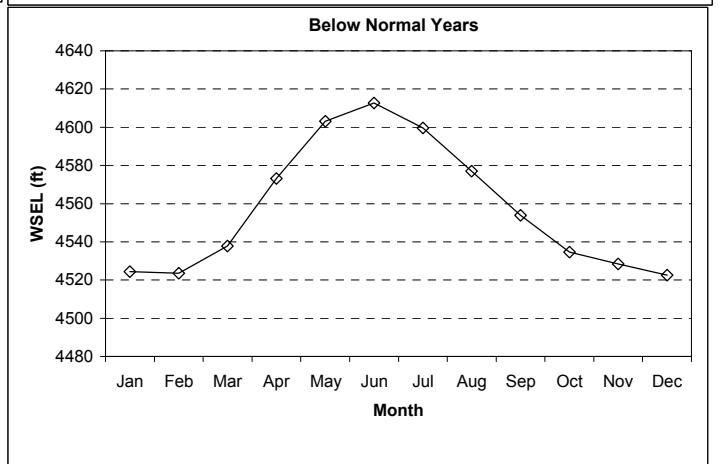
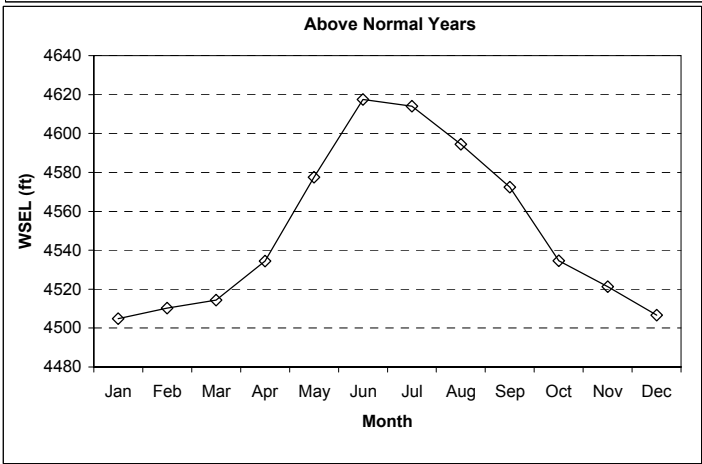
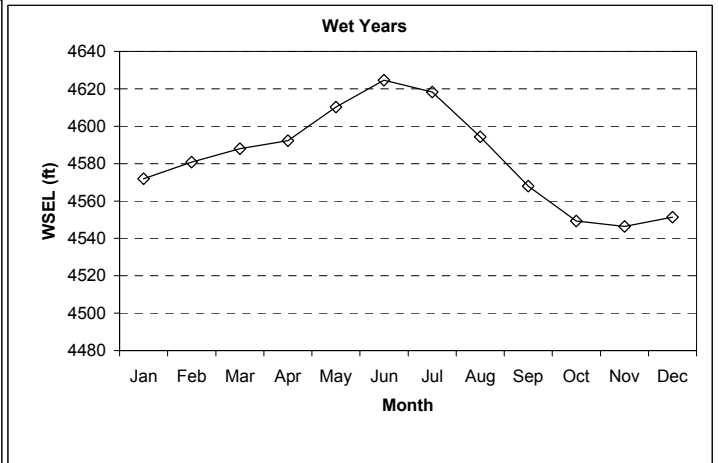
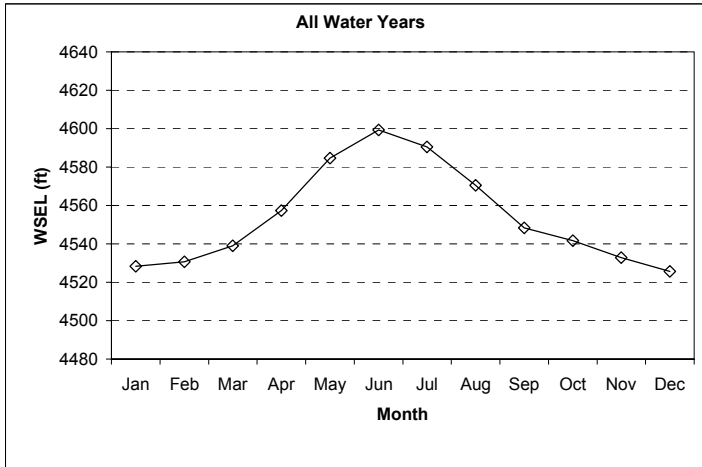
WSEL: Water surface elevation

Figure H-5. Median, Quartile (25% and 75%), Minimum, and Maximum Reservoir Water Surface Elevations by Month for French Meadows Reservoir and Hell Hole Reservoir (1975 – 2007).



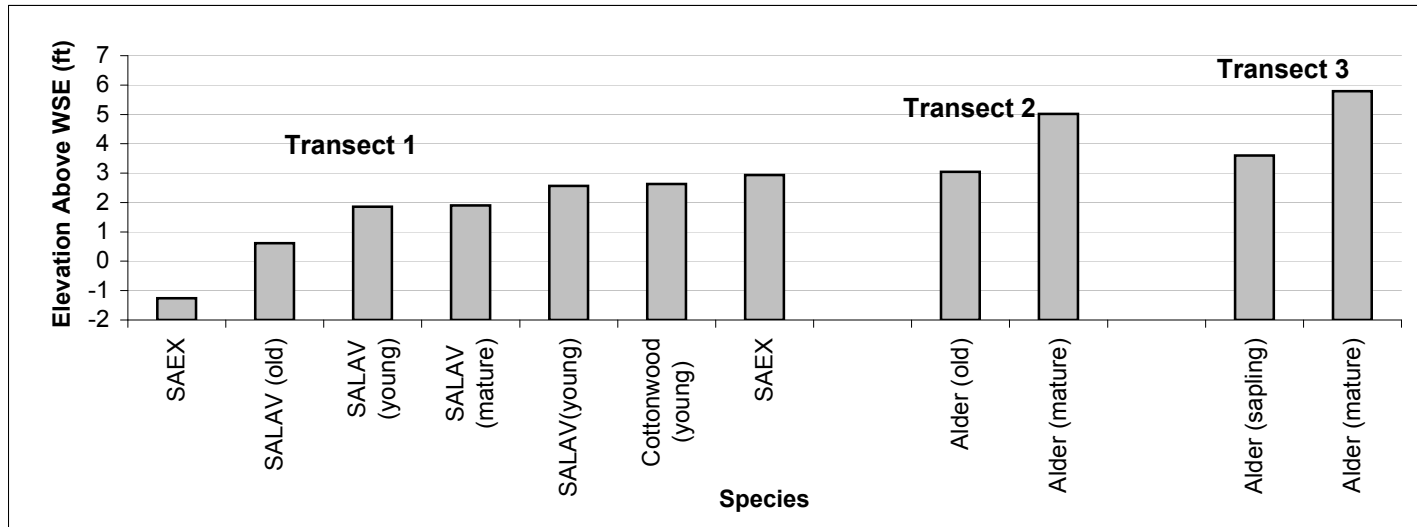
WSEL: Water surface elevation

Figure H-6. Hell Hole Reservoir Annual and Inter-annual Fluctuations in Water Surface Elevations (1975 - 2007).



WSEL: Water surface elevation

Figure H-7. Rooted Elevation of Riparian Individuals at Three Locations Along Ralston Afterbay.

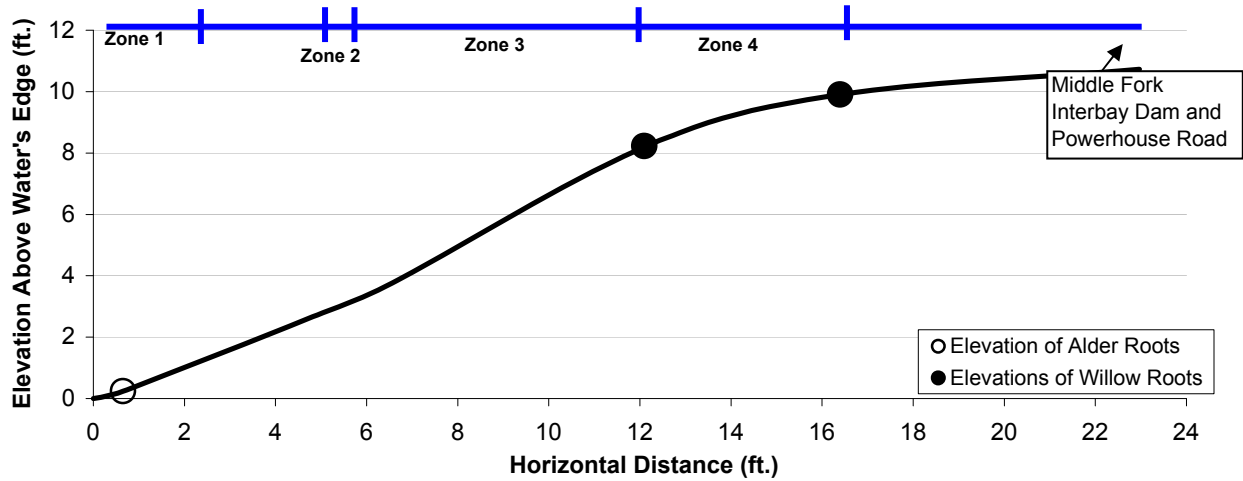


WSEL: water surface elevation

Species Present:

Scientific Name	Common Name	Species Code
<i>Alnus rhombifolia</i>	white alder	ALRH2
<i>Fremontii</i>	Fremont cottonwood	POFR2
<i>Salix exigua</i>	narrow leaf willow	SAEX
<i>Salix laevigata</i>	red willow	SALAV

Figure H-8. General Pattern of Riparian Vegetation Along Middle Fork Interbay in Relation to Elevation Above the Water Surface Elevation¹.



¹ Water surface elevations in Middle Fork Interbay have been kept relatively constant under existing operations at approximately 2,524 feet.

Transect Number	Zone	Plant Community Classification ¹	Dominant Species ² (>25% cover)	Subdominant Species	Substrate	Zone start (ft)	Zone end (ft)
1	1	White Alder/Sedge Plant Association	ALRH2	CALE9 fines	cobble	1.0	2.3
	2	Unclassified Woodland or Forest Community	ACMA		fines, cobble	4.9	5.2
	3	Unclassified Woodland or Forest Community	SALI		fines, cobble	5.2	12.1
	4	California Annual Grassland Alliance Group	BRHO2		fines, duff	12.1	16.4

¹ Community Classifications developed using Potter (2005) from ENTRIX field data collected along the line-intercept.

² Species Present:

Scientific Name	Common Name	Species Code
<i>Acer macrophyllum</i>	big leaf maple	ACMA3
<i>Alnus rhombifolia</i>	white alder	ALRH2
<i>Bromus hordeaceus</i>	soft cress	BRHO2
<i>Carex leporinella</i>	Sierra hare sedge	CALE9
<i>Salix ligulifolia</i>	strapleaf willow	SALI

MAPS