Appendix C
Habitat Suitability Assessment

Shasta Dam Fish Passage Evaluation

U.S. Department of the Interior
Bureau of Reclamation

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Table C-1. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Values for the Sacramento River

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute											
				Channel Morphometry				Substrate					Habitat		
				Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth Range (ft)	Bed Substrate Dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Ratio (proportion of pools in section)	Average Spawning Patch Size (m^2)	Average Max Pool Depth (ft)
Box Canyon	1	4	424.6	ST	1.7	1.2	0.8-3.3	grav/cob	45	38	0	20	0	0	0.0
	2	4	416.1	ST	1.7	1.2	0.8-3.3	grav/cob	45	38	0	20	10	0	6.6-9.8
	3	4	268.8	ST	1.7	1.2	0.8-3.3	grav/cob	45	38	0	20	18	15	3.3-6.6
	4	4	513.6	ST	1.7	1.2	0.8-3.3	grav/cob	45	38	0	20	40	0	6.6-9.8
	5	4	385.0	ST	1.7	1.2	0.8-3.3	grav/cob	45	38	0	20	63	70	3.3-6.6
	6	4	356.0	ST	1.7	1.2	0.8-3.3	grav/cob	45	38	0	20	0	4	0.0
	7	4	285.0	ST	1.7	1.2	0.8-3.3	grav/cob	45	38	0	20	0	130	6.6-9.8
	8	4	338.0	ST	1.7	1.2	0.8-3.3	grav/cob	45	38	0	20	13	0	3.3-6.6
	9	4	337.7	CAS	1.7	1.2	0.8-3.3	grav/cob	45	38	0	20	38	0	3.3-6.6
	10	4	436.8	CAS	1.7	1.2	0.8-3.3	grav/cob	45	38	0	20	24	0	3.3-6.6
	11	4	295.0	CAS	1.7	1.2	0.8-3.3	grav/cob	45	38	0	20	13	0	>9.8
	12	3	325.5	CAS	1.7	1.2	0.8-3.3	grav/cob	45	38	0	20	100	0	6.6-9.8

Table C-1. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Values for the Sacramento River (contd.)

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute											
				Channel Morphometry				Substrate					Habitat		
				Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth Range (ft)	Bed Substrate Dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Ratio (proportion of pools in section)	Average Spawning Patch Size (m^2)	Average Max Pool Depth (ft)
Mossbrae	1	4	595.9	PB	1.2	1.3	0.8-3.3	cob/grav	34	47	0	18	0	14	0.0
	2	4	527.6	PB	1.2	1.3	0.8-3.3	cob/grav	34	47	0	18	10	0	3.3-6.6
	3	4	460.2	PB	1.2	1.3	0.8-3.3	cob/grav	34	47	0	18	47	59	6.6-9.8
	4	4	402.9	PB	1.2	1.3	0.8-3.3	cob/grav	34	47	0	18	49	0	3.3-6.6
	5	4	698.0	PB	1.2	1.3	0.8-3.3	cob/grav	34	47	0	18	41	84	3.3-6.6
	6	4	574.5	PB	1.2	1.3	0.8-3.3	cob/grav	34	47	0	18	12	42	3.3-6.6
	7	4	576.1	PB	1.2	1.3	0.8-3.3	cob/grav	34	47	0	18	0	0	0.0
	8	4	508.7	PB	1.2	1.3	0.8-3.3	cob/grav	34	47	0	18	0	0	0.0
	9	4	324.6	ST	1.2	1.3	0.8-3.3	cob/grav	34	47	0	18	51	0	3.3-6.6
	10	4	490.7	ST	1.2	1.3	0.8-3.3	cob/grav	34	47	0	18	0	0	0.0
	11	4	437.1	ST	1.2	1.3	0.8-3.3	cob/grav	34	47	0	18	12	0	3.3-6.6
	12	4	645.9	ST	1.2	1.3	0.8-3.3	cob/grav	34	47	0	18	36	0	3.3-6.6
	13	5	730.6	ST	1.2	1.3	0.8-3.3	cob/grav	34	47	0	18	11	37	6.6-9.8

Table C-1. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Values for the Sacramento River (contd.)

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute											
				Channel Morphometry				Substrate					Habitat		
				Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Bed Substrate Dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Ratio (proportion of pools in section)	Average Spawning Patch Size (m^2)	Average Max Pool Depth (ft)
Dunsmuir	1	4	835.2	PB	1.0	1.7	0.8-3.3	grav/cob	48	39	0	15	17	0	3.3-6.6
	2	4	382.2	PB	1.0	1.7	0.8-3.3	grav/cob	48	39	0	15	15	0	3.3-6.6
	3	4	326.7	PB	1.0	1.7	0.8-3.3	grav/cob	48	39	0	15	0	167	0.0
	4	4	553.5	PB	1.0	1.7	0.8-3.3	grav/cob	48	39	0	15	13	0	6.6-9.8
	5	4	801.9	PB	1.0	1.7	0.8-3.3	grav/cob	48	39	0	15	0	0	0.0
	6	4	374.0	PB	1.0	1.7	0.8-3.3	grav/cob	48	39	0	15	27	93	6.6-9.8
	7	4	499.6	PB	1.0	1.7	0.8-3.3	grav/cob	48	39	0	15	35	167	6.6-9.8
	8	4	330.7	PB	1.0	1.7	0.8-3.3	grav/cob	48	39	0	15	0	0	0.0
	9	4	345.3	PB	1.0	1.7	0.8-3.3	grav/cob	48	39	0	15	15	0	3.3-6.6
	10	4	539.2	PB	1.0	1.8	0.8-3.3	grav/cob	49	46	0	15	24	0	3.3-6.6
	11	4	1,122.9	PB	1.0	1.8	0.8-3.3	grav/cob	49	46	0	15	0	37	0.0
	12	4	454.2	PB	1.0	1.8	0.8-3.3	grav/cob	49	46	0	15	0	0	0.0
	13	4	252.4	PB	1.0	1.8	0.8-3.3	grav/cob	49	46	0	15	31	53	6.6-9.8
	14	4	472.7	PB	1.0	1.8	0.8-3.3	grav/cob	49	46	0	15	36	46	3.3-6.6
	15	4	398.7	PB	1.0	1.8	0.8-3.3	grav/cob	49	46	0	15	12	56	6.6-9.8
	16	4	461.8	PB	1.0	1.8	0.8-3.3	grav/cob	49	46	0	15	16	139	3.3-6.6
	17	4	480.4	PB	1.0	1.8	0.8-3.3	grav/cob	49	46	0	15	0	0	0.0
	18	4	532.5	PB	1.0	1.8	0.8-3.3	grav/cob	49	46	0	15	9	84	3.3-6.6
	19	2	246.9	PB	1.0	1.8	0.8-3.3	grav/cob	49	46	0	15	0	0	0.0

Table C-1. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Values for the Sacramento River (contd.)

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute											
				Channel Morphometry				Substrate					Habitat		
				Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Bed Substrate Dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Ratio (proportion of pools in section)	Average Spawning Patch Size (m^2)	Average Max Pool Depth (ft)
Canyon	1	4	542.5	RP	0.9	1.78	0.8-3.3	grav/cob	54	33	0	18	7	0	6.6-9.8
	2	4	520.9	RP	0.9	1.78	0.8-3.3	grav/cob	54	33	0	18	26	100	3.3-6.6
	3	4	586.7	RP	0.9	1.78	0.8-3.3	grav/cob	54	33	0	18	24	77	6.6-9.8
	4	4	528.8	RP	0.9	1.78	0.8-3.3	grav/cob	54	33	0	18	26	0	3.3-6.6
	5	4	321.3	RP	0.9	1.78	0.8-3.3	grav/cob	54	33	0	18	6	0	6.6-9.8
	6	4	727.6	RP	0.9	1.78	0.8-3.3	grav/cob	54	33	0	18	41	0	3.3-6.6
	7	4	533.7	RP	0.9	1.78	0.8-3.3	grav/cob	54	33	0	18	25	82	6.6-9.8
	8	4	501.7	RP	0.9	1.78	0.8-3.3	grav/cob	54	33	0	18	0	0	0.0
	9	4	869.9	PB	0.9	1.78	0.8-3.3	grav/cob	54	36	0	18	13	139	6.6-9.8
	10	4	503.2	PB	0.9	1.78	0.8-3.3	grav/cob	54	36	0	18	9	0	6.6-9.8
	11	4	582.2	PB	0.9	1.78	0.8-3.3	grav/cob	54	36	0	18	13	0	3.3-6.6
	12	4	722.4	PB	0.9	1.78	0.8-3.3	grav/cob	54	36	0	18	0	11	0.0
	13	4	417.3	PB	0.9	1.78	0.8-3.3	grav/cob	54	36	0	18	23	0	3.3-6.6
	14	4	997.6	PB	0.9	1.78	0.8-3.3	grav/cob	54	36	0	18	5	0	6.6-9.8
	15	4	339.5	PB	0.9	1.78	0.8-3.3	grav/cob	54	36	0	18	13	0	6.6-9.8
	16	4	349.9	PB	0.9	1.78	0.8-3.3	grav/cob	54	36	0	18	24	158	6.6-9.8
	17	3	488.0	PB	0.9	1.78	0.8-3.3	grav/cob	54	36	0	18	0	0	0.0
	18	4	613.3	PB	0.9	1.78	0.8-3.3	grav/cob	53	44	0	18	0	0	0.0
	19	4	585.8	PB	0.9	1.78	0.8-3.3	grav/cob	53	44	0	18	12	130	6.6-9.8

Table C-1. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Values for the Sacramento River (contd.)

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute											
				Channel Morphometry				Substrate					Habitat		
				Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Bed Substrate Dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Ratio (proportion of pools in section)	Average Spawning Patch Size (m^2)	Average Max Pool Depth (ft)
Canyon	20	4	353.0	PB	0.9	1.78	0.8-3.3	grav/cob	53	44	0	18	0	9	0.0
	21	4	488.3	PB	0.9	1.78	0.8-3.3	grav/cob	53	44	0	18	27	102	3.3-6.6
	22	4	468.2	PB	0.9	1.78	0.8-3.3	grav/cob	53	44	0	18	0	23	0.0
	23	4	681.2	PB	0.9	1.78	0.8-3.3	grav/cob	53	44	0	18	19	46	3.3-6.6
	24	4	784.3	PB	0.9	1.78	0.8-3.3	grav/cob	53	44	0	18	5	0	6.6-9.8
	25	4	499.9	PB	0.9	1.78	0.8-3.3	grav/cob	53	44	0	18	23	98	6.6-9.8
	26	4	500.2	PB	0.9	1.78	0.8-3.3	grav/cob	53	44	0	18	17	144	3.3-6.6
Shotgun	1	4	371.6	RP	0.9	1.83	0.8-3.3	cob/grav	31	53	0	5	0	0	0.0
	2	4	379.5	RP	0.9	1.83	0.8-3.3	cob/grav	31	53	0	5	34	242	>9.8
	3	4	712.3	RP	0.9	1.83	0.8-3.3	cob/grav	31	53	0	5	27	0	>9.8
	4	4	603.5	RP	0.9	1.83	0.8-3.3	cob/grav	31	53	0	5	11	0	6.6-9.8
	5	4	417.6	RP	0.9	1.83	0.8-3.3	cob/grav	31	53	0	5	18	56	6.6-9.8
	6	4	749.8	RP	0.9	1.83	0.8-3.3	cob/grav	31	53	0	5	87	183	6.6-9.8
	7	4	539.5	RP	0.9	1.83	0.8-3.3	cob/grav	31	53	0	5	34	84	>9.8
	8	4	335.3	RP	0.9	1.83	0.8-3.3	cob/grav	31	53	0	5	66	46	>9.8
	9	4	629.4	RP	0.9	1.83	0.8-3.3	cob/grav	31	53	0	5	17	0	>9.8
	10	4	445.3	RP	0.9	1.83	0.8-3.3	cob/grav	31	53	0	5	36	125	6.6-9.8
	11	4	235.9	RP	0.9	1.83	0.8-3.3	cob/grav	31	53	0	5	53	0	6.6-9.8
	12	4	413.0	RP	0.9	1.83	0.8-3.3	cob/grav	31	53	0	5	62	105	>9.8

Table C-1. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Values for the Sacramento River (contd.)

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute											
				Channel Morphometry				Substrate					Habitat		
				Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Bed Substrate Dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Ratio (proportion of pools in section)	Average Spawning Patch Size (m^2)	Average Max Pool Depth (ft)
Shotgun	13	4	525.8	RP	0.9	1.83	0.8-3.3	cob/grav	31	53	0	5	73	119	6.6-9.8
	14	4	549.6	RP	0.9	1.83	0.8-3.3	cob/grav	41	47	0	5	12	54	6.6-9.8
	15	4	524.9	RP	0.9	1.83	0.8-3.3	cob/grav	41	47	0	5	69	84	>9.8
	16	4	361.5	RP	0.9	1.83	0.8-3.3	cob/grav	41	47	0	5	28	0	6.6-9.8
	17	4	516.9	RP	0.9	1.83	0.8-3.3	cob/grav	41	47	0	5	77	237	>9.8
	18	4	360.6	RP	0.9	1.83	0.8-3.3	cob/grav	41	47	0	5	52	28	6.6-9.8
	19	4	509.0	RP	0.9	1.83	0.8-3.3	cob/grav	41	47	0	5	67	0	6.6-9.8
	20	4	755.9	RP	0.9	1.83	0.8-3.3	cob/grav	41	47	0	5	47	0	>9.8
	21	4	562.4	RP	0.9	1.83	0.8-3.3	cob/grav	41	47	0	5	25	0	6.6-9.8
	22	4	611.7	RP	0.9	1.83	0.8-3.3	cob/grav	41	47	0	5	24	0	6.6-9.8
	23	4	445.0	RP	0.9	1.83	0.8-3.3	cob/grav	41	47	0	5	42	0	6.6-9.8
	24	4	1,013.2	RP	0.9	1.83	0.8-3.3	cob/grav	41	47	0	5	16	0	>9.8
	25	5	1,185.7	RP	0.9	1.83	0.8-3.3	cob/grav	41	47	0	5	32	0	>9.8
North Salt	1	4	304.5	RP	0.6	1.75	0.8-3.3	cob/grav	34	42	0	38	34	130	6.6-9.8
	2	4	1,054.9	RP	0.6	1.75	0.8-3.3	cob/grav	34	42	0	38	30	836	6.6-9.8
	3	4	804.7	RP	0.6	1.75	0.8-3.3	cob/grav	34	42	0	38	45	74	6.6-9.8
	4	4	702.6	RP	0.6	1.75	0.8-3.3	cob/grav	34	42	0	38	23	93	6.6-9.8
	5	4	442.3	RP	0.6	1.75	0.8-3.3	cob/grav	34	42	0	38	24	0	6.6-9.8
	6	4	458.7	RP	0.6	1.75	0.8-3.3	cob/grav	34	42	0	38	56	51	3.3-6.6

Table C-1. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Values for the Sacramento River (contd.)

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute											
				Channel Morphometry				Substrate					Habitat		
				Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Bed Substrate Dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Ratio (proportion of pools in section)	Average Spawning Patch Size (m^2)	Average Max Pool Depth (ft)
North Salt	7	4	617.2	RP	0.6	1.75	0.0-0.8	cob/grav	34	42	0	38	35	0	6.6-9.8
	8	4	776.6	RP	0.6	1.75	0.8-3.3	cob/grav	34	42	0	38	67	42	3.3-6.6
	9	4	620.9	RP	0.6	1.75	0.8-3.3	cob/grav	34	42	0	38	30	62	6.6-9.8
	10	4	588.9	RP	0.6	1.75	0.8-3.3	cob/grav	34	42	0	38	49	77	6.6-9.8
	11	4	608.1	RP	0.6	1.75	0.8-3.3	cob/grav	36	42	1	38	44	69	3.3-6.6
	12	4	402.3	RP	0.6	1.75	0.8-3.3	cob/grav	36	42	1	38	0	46	0.0
	13	4	672.1	RP	0.6	1.75	0.8-3.3	cob/grav	36	42	1	38	37	37	6.6-9.8
	14	4	428.2	RP	0.6	1.75	0.8-3.3	cob/grav	36	42	1	38	20	0	6.6-9.8
	15	4	420.0	RP	0.6	1.75	0.8-3.3	cob/grav	36	42	1	38	78	130	6.6-9.8
	16	4	522.1	RP	0.6	1.75	0.8-3.3	cob/grav	36	42	1	38	48	232	6.6-9.8
	17	4	373.7	RP	0.6	1.75	0.8-3.3	cob/grav	36	42	1	38	43	0	6.6-9.8
	18	4	345.0	RP	0.6	1.75	0.8-3.3	cob/grav	36	42	1	38	26	0	3.3-6.6
	19	5	796.7	RP	0.6	1.75	0.8-3.3	cob/grav	36	42	1	38	32	0	6.6-9.8

Key:
% = percent
bld = boulder
CAS = cascade
cob = cobble
ft = feet
grav = gravel
m = meter
m^2 = square meter
PB = plane-bed
RP = riffle pool
ST = step-pool

Table C-2. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Scores for the Sacramento River

Study Reach	Index Section	Attribute											
		Channel Morphometry				Substrate					Habitat		
		Channel Type	Average Gradient	Average Entrenchment	Mean Channel Depth Range	Bed Substrate Dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Ratio (proportion of pools in section)	Average Spawning Patch Size	Average Max Pool Depth Range
Box Canyon	1	1	3	1	3	3	3	3	3	3	1	0	0
	2	1	3	1	3	3	3	3	3	3	1	0	3
	3	1	3	1	3	3	3	3	3	3	1	3	2
	4	1	3	1	3	3	3	3	3	3	2	0	3
	5	1	3	1	3	3	3	3	3	3	1	3	2
	6	1	3	1	3	3	3	3	3	3	1	2	0
	7	1	3	1	3	3	3	3	3	3	1	3	3
	8	1	3	1	3	3	3	3	3	3	1	0	2
	9	1	3	1	3	3	3	3	3	3	2	0	2
	10	1	3	1	3	3	3	3	3	3	2	0	2
	11	1	3	1	3	3	3	3	3	3	1	0	3
	12	1	3	1	3	3	3	3	3	3	1	0	3
Mossbrae	1	2	3	1	3	3	3	2	3	3	1	3	0
	2	2	3	1	3	3	3	2	3	3	1	0	2
	3	2	3	1	3	3	3	2	3	3	3	3	3
	4	2	3	1	3	3	3	2	3	3	3	0	2
	5	2	3	1	3	3	3	2	3	3	3	3	2

Table C-2. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Scores for the Sacramento River (contd.)

Study Reach	Index Section	Attribute											
		Channel Morphometry				Substrate					Habitat		
		Channel Type	Average Gradient	Average Entrenchment	Mean Channel Depth Range	Bed Substrate Dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Ratio (proportion of pools in section)	Average Spawning Patch Size	Average Max Pool Depth Range
Mossbrae	6	2	3	1	3	3	3	2	3	3	1	3	2
	7	2	3	1	3	3	3	2	3	3	1	0	0
	8	2	3	1	3	3	3	2	3	3	1	0	0
	9	1	3	1	3	3	3	2	3	3	3	0	2
	10	1	3	1	3	3	3	2	3	3	1	0	0
	11	1	3	1	3	3	3	2	3	3	1	0	2
	12	1	3	1	3	3	3	2	3	3	2	0	2
	13	1	3	1	3	3	3	2	3	3	1	3	3
Dunsmuir	1	2	3	2	3	3	3	3	3	3	1	0	2
	2	2	3	2	3	3	3	3	3	3	1	0	2
	3	2	3	2	3	3	3	3	3	3	1	3	0
	4	2	3	2	3	3	3	3	3	3	1	0	3
	5	2	3	2	3	3	3	3	3	3	1	0	0
	6	2	3	2	3	3	3	3	3	3	2	3	3
	7	2	3	2	3	3	3	3	3	3	2	3	3
	8	2	3	2	3	3	3	3	3	3	1	0	0
	9	2	3	2	3	3	3	3	3	3	1	0	2

Table C-2. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Scores for the Sacramento River (contd.)

Study Reach	Index Section	Attribute											
		Channel Morphometry				Substrate					Habitat		
		Channel Type	Average Gradient	Average Entrenchment	Mean Channel Depth Range	Bed Substrate Dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Ratio (proportion of pools in section)	Average Spawning Patch Size	Average Max Pool Depth Range
Dunsmuir	10	2	3	2	3	3	3	2	3	3	2	0	2
	11	2	3	2	3	3	3	2	3	3	1	3	0
	12	2	3	2	3	3	3	2	3	3	1	0	0
	13	2	3	2	3	3	3	2	3	3	2	3	3
	14	2	3	2	3	3	3	2	3	3	2	3	2
	15	2	3	2	3	3	3	2	3	3	1	3	3
	16	2	3	2	3	3	3	2	3	3	1	3	2
	17	2	3	2	3	3	3	2	3	3	1	0	0
	18	2	3	2	3	3	3	2	3	3	1	3	2
	19	2	3	2	3	3	3	2	3	3	1	0	0
Canyon	1	3	3	2	3	3	3	3	3	3	1	0	3
	2	3	3	2	3	3	3	3	3	3	2	3	2
	3	3	3	2	3	3	3	3	3	3	2	3	3
	4	3	3	2	3	3	3	3	3	3	2	0	2
	5	3	3	2	3	3	3	3	3	3	1	0	3
	6	3	3	2	3	3	3	3	3	3	3	0	2
	7	3	3	2	3	3	3	3	3	3	2	3	3

Table C-2. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Scores for the Sacramento River (contd.)

Study Reach	Index Section	Attribute											
		Channel Morphometry				Substrate					Habitat		
		Channel Type	Average Gradient	Average Entrenchment	Mean Channel Depth Range	Bed Substrate Dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Ratio (proportion of pools in section)	Average Spawning Patch Size	Average Max Pool Depth Range
Canyon	8	3	3	2	3	3	3	3	3	3	1	0	0
	9	2	3	2	3	3	3	3	3	3	1	3	3
	10	2	3	2	3	3	3	3	3	3	1	0	3
	11	2	3	2	3	3	3	3	3	3	1	0	2
	12	2	3	2	3	3	3	3	3	3	1	3	0
	13	2	3	2	3	3	3	3	3	3	2	0	2
	14	2	3	2	3	3	3	3	3	3	1	0	3
	15	2	3	2	3	3	3	3	3	3	1	0	3
	16	2	3	2	3	3	3	3	3	3	2	3	3
	17	2	3	2	3	3	3	3	3	3	1	0	0
	18	2	3	2	3	3	3	2	3	3	1	0	0
	19	2	3	2	3	3	3	2	3	3	1	3	3
	20	2	3	2	3	3	3	2	3	3	1	3	0
	21	2	3	2	3	3	3	2	3	3	2	3	2
	22	2	3	2	3	3	3	2	3	3	1	3	0
	23	2	3	2	3	3	3	2	3	3	1	3	2
	24	2	3	2	3	3	3	2	3	3	1	0	3

Table C-2. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Scores for the Sacramento River (contd.)

Study Reach	Index Section	Attribute											
		Channel Morphometry				Substrate					Habitat		
		Channel Type	Average Gradient	Average Entrenchment	Mean Channel Depth Range	Bed Substrate Dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Ratio (proportion of pools in section)	Average Spawning Patch Size	Average Max Pool Depth Range
Canyon	25	2	3	2	3	3	3	2	3	3	2	3	3
	26	2	3	2	3	3	3	2	3	3	1	3	2
Shotgun	1	3	3	2	3	3	3	2	3	3	1	0	0
	2	3	3	2	3	3	3	2	3	3	2	3	3
	3	3	3	2	3	3	3	2	3	3	2	0	3
	4	3	3	2	3	3	3	2	3	3	1	0	3
	5	3	3	2	3	3	3	2	3	3	1	3	3
	6	3	3	2	3	3	3	2	3	3	1	3	3
	7	3	3	2	3	3	3	2	3	3	2	3	3
	8	3	3	2	3	3	3	2	3	3	1	3	3
	9	3	3	2	3	3	3	2	3	3	1	0	3
	10	3	3	2	3	3	3	2	3	3	2	3	3
	11	3	3	2	3	3	3	2	3	3	3	0	3
	12	3	3	2	3	3	3	2	3	3	1	3	3
	13	3	3	2	3	3	3	2	3	3	1	3	3
	14	3	3	2	3	3	3	2	3	3	1	3	3

Table C-2. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Scores for the Sacramento River (contd.)

Study Reach	Index Section	Attribute											
		Channel Morphometry				Substrate					Habitat		
		Channel Type	Average Gradient	Average Entrenchment	Mean Channel Depth Range	Bed Substrate Dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Ratio (proportion of pools in section)	Average Spawning Patch Size	Average Max Pool Depth Range
shotgun	15	3	3	2	3	3	3	2	3	3	1	3	3
	16	3	3	2	3	3	3	2	3	3	2	0	3
	17	3	3	2	3	3	3	2	3	3	1	3	3
	18	3	3	2	3	3	3	2	3	3	3	3	3
	19	3	3	2	3	3	3	2	3	3	1	0	3
	20	3	3	2	3	3	3	2	3	3	3	0	3
	21	3	3	2	3	3	3	2	3	3	2	0	3
	22	3	3	2	3	3	3	2	3	3	2	0	3
	23	3	3	2	3	3	3	2	3	3	3	0	3
	24	3	3	2	3	3	3	2	3	3	1	0	3
	25	3	3	2	3	3	3	2	3	3	2	0	3
North Salt	1	3	3	2	3	3	3	2	3	2	2	3	3
	2	3	3	2	3	3	3	2	3	2	2	3	3
	3	3	3	2	3	3	3	2	3	2	3	3	3
	4	3	3	2	3	3	3	2	3	2	2	3	3
	5	3	3	2	3	3	3	2	3	2	2	0	3
	6	3	3	2	3	3	3	2	3	2	3	3	2

Table C-2. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Scores for the Sacramento River (contd.)

Study Reach	Index Section	Attribute											
		Channel Morphometry				Substrate					Habitat		
		Channel Type	Average Gradient	Average Entrenchment	Mean Channel Depth Range	Bed Substrate Dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Ratio (proportion of pools in section)	Average Spawning Patch Size	Average Max Pool Depth Range
North Salt	7	3	3	2	1	3	3	2	3	2	2	0	3
	8	3	3	2	3	3	3	2	3	2	1	3	2
	9	3	3	2	3	3	3	2	3	2	2	3	3
	10	3	3	2	3	3	3	2	3	2	3	3	3
	11	3	3	2	3	3	3	2	3	2	3	3	2
	12	3	3	2	3	3	3	2	3	2	1	3	0
	13	3	3	2	3	3	3	2	3	2	2	3	3
	14	3	3	2	3	3	3	2	3	2	1	0	3
	15	3	3	2	3	3	3	2	3	2	1	3	3
	16	3	3	2	3	3	3	2	3	2	3	3	3
	17	3	3	2	3	3	3	2	3	2	3	0	3
	18	3	3	2	3	3	3	2	3	2	2	0	2
	19	3	3	2	3	3	3	2	3	2	2	0	3

Key:
% = percent
0 = “none”
1 = “poor”
2 = “fair”
3 = “good”

Table C-3. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Mean Attribute Scores for the Sacramento River by Index Section

Study Reach	Index Section	Attribute		
		Channel Morphometry	Substrate	Habitat
Box Canyon	1	2.0	3.0	0.3
	2	2.0	3.0	1.3
	3	2.0	3.0	2.0
	4	2.0	3.0	1.7
	5	2.0	3.0	2.0
	6	2.0	3.0	1.0
	7	2.0	3.0	2.3
	8	2.0	3.0	1.0
	9	2.0	3.0	1.3
	10	2.0	3.0	1.3
	11	2.0	3.0	1.3
	12	2.0	3.0	1.3
Mossbrae	1	2.3	2.8	1.3
	2	2.3	2.8	1.0
	3	2.3	2.8	3.0
	4	2.3	2.8	1.7
	5	2.3	2.8	2.7
	6	2.3	2.8	2.0
	7	2.3	2.8	0.3
	8	2.3	2.8	0.3
	9	2.0	2.8	1.7
	10	2.0	2.8	0.3
	11	2.0	2.8	1.0
	12	2.0	2.8	1.3
	13	2.0	2.8	2.3

Table C-3. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Mean Attribute Scores for the Sacramento River by Index Section (contd.)

Study Reach	Index Section	Attribute		
		Channel Morphometry	Substrate	Habitat
Dunsmuir	1	2.5	3.0	1.0
	2	2.5	3.0	1.0
	3	2.5	3.0	1.3
	4	2.5	3.0	1.3
	5	2.5	3.0	0.3
	6	2.5	3.0	2.7
	7	2.5	3.0	2.7
	8	2.5	3.0	0.3
	9	2.5	3.0	1.0
	10	2.5	2.8	1.3
	11	2.5	2.8	1.3
	12	2.5	2.8	0.3
	13	2.5	2.8	2.7
	14	2.5	2.8	2.3
	15	2.5	2.8	2.3
	16	2.5	2.8	2.0
	17	2.5	2.8	0.3
	18	2.5	2.8	2.0
	19	2.5	2.8	0.3
Canyon	1	2.8	3.0	1.3
	2	2.8	3.0	2.3
	3	2.8	3.0	2.7
	4	2.8	3.0	1.3
	5	2.8	3.0	1.3
	6	2.8	3.0	1.7
	7	2.8	3.0	2.7
	8	2.8	3.0	0.3
	9	2.5	3.0	2.3
	10	2.5	3.0	1.3
	11	2.5	3.0	1.0
	12	2.5	3.0	1.3
	13	2.5	3.0	1.3
	14	2.5	3.0	1.3
	15	2.5	3.0	1.3
	16	2.5	3.0	2.7

Study Reach	Index Section	Attribute		
		Channel Morphometry	Substrate	Habitat
	17	2.5	3.0	0.3
	18	2.5	2.8	0.3
	19	2.5	2.8	2.3
	20	2.5	2.8	1.3
	21	2.5	2.8	2.3
	22	2.5	2.8	1.3

Table C-3. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Mean Attribute Scores for the Sacramento River by Index Section (contd.)

Study Reach	Index Section	Attribute		
		Channel Morphometry	Substrate	Habitat
Canyon	23	2.5	2.8	2.0
	24	2.5	2.8	1.3
	25	2.5	2.8	2.7
	26	2.5	2.8	2.0
Shotgun	1	2.8	2.8	0.3
	2	2.8	2.8	2.7
	3	2.8	2.8	1.7
	4	2.8	2.8	1.3
	5	2.8	2.8	2.3
	6	2.8	2.8	2.3
	7	2.8	2.8	2.7
	8	2.8	2.8	2.3
	9	2.8	2.8	1.3
	10	2.8	2.8	2.7
	11	2.8	2.8	2.0
	12	2.8	2.8	2.3
	13	2.8	2.8	2.3
	14	2.8	2.8	2.3
	15	2.8	2.8	2.3
	16	2.8	2.8	1.7
	17	2.8	2.8	2.3
	18	2.8	2.8	3.0
	19	2.8	2.8	1.3
	20	2.8	2.8	2.0
	21	2.8	2.8	1.7

Study Reach	Index Section	Attribute		
		Channel Morphometry	Substrate	Habitat
	22	2.8	2.8	1.7
	23	2.8	2.8	2.0
	24	2.8	2.8	1.3
	25	2.8	2.8	1.7
North Salt	1	2.8	2.6	2.7
	2	2.8	2.6	2.7
	3	2.8	2.6	3.0
	4	2.8	2.6	2.7
	5	2.8	2.6	1.7
	6	2.8	2.6	2.7
	7	2.3	2.6	1.7
	8	2.8	2.6	2.0
	9	2.8	2.6	2.7
	10	2.8	2.6	3.0
	11	2.8	2.6	2.7
	12	2.8	2.6	1.3

Table C-3. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Mean Attribute Scores for the Sacramento River by Index Section (contd.)

Study Reach	Index Section	Attribute		
		Channel Morphometry	Substrate	Habitat
North Salt	13	2.8	2.6	2.7
	14	2.8	2.6	1.3
	15	2.8	2.6	2.3
	16	2.8	2.6	3.0
	17	2.8	2.6	2.0
	18	2.8	2.6	1.3
	19	2.8	2.6	1.7

Note: Values are means of attribute metrics.

Key:
1 = “poor”
2 = “fair”
3 = “good”

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Table C-4. Video-Derived Chinook Salmon Rearing Attribute Metric Values for the Sacramento River

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute														
				Channel Morphometry				Substrate					Cover				Habitat	
				Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Bed Substrate Dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Overhead Cover (% surface area)	Boulder Cover (%)	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep,>30 ft wide)
Box Canyon	1	4	424.6	ST	1.7	1.2	0.8-3.3	grav/cob	45	38	0	20	8	14	2.4	2	0	0
	2	4	416.1	ST	1.7	1.2	0.8-3.3	grav/cob	45	38	0	20	18	13	0.2	2	10	100
	3	4	268.8	ST	1.7	1.2	0.8-3.3	grav/cob	45	38	0	20	8	9	0.0	2	18	100
	4	4	513.6	ST	1.7	1.2	0.8-3.3	grav/cob	45	38	0	20	12	13	0.2	2	40	100
	5	4	385.0	ST	1.7	1.2	0.8-3.3	grav/cob	45	38	0	20	7	6	0.7	2	63	100
	6	4	356.0	ST	1.7	1.2	0.8-3.3	grav/cob	45	38	0	20	8	14	0.0	2	0	0
	7	4	285.0	ST	1.7	1.2	0.8-3.3	grav/cob	45	38	0	20	7	10	1.2	2	51	100
	8	4	338.0	ST	1.7	1.2	0.8-3.3	grav/cob	45	38	0	20	9	14	0.0	2	13	100
	9	4	337.7	CAS	1.7	1.2	0.8-3.3	grav/cob	45	38	0	20	8	9	0.7	2	38	100
	10	4	436.8	CAS	1.7	1.2	0.8-3.3	grav/cob	45	38	0	20	14	11	0.2	2	24	100
	11	4	295.0	CAS	1.7	1.2	0.8-3.3	grav/cob	45	38	0	20	15	14	0.0	2	13	100
	12	3	325.5	CAS	1.7	1.2	3.3-6.6	grav/cob	45	38	0	20	6	3	0.0	1	100	100

Table C-4. Video-Derived Chinook Salmon Rearing Attribute Metric Values for the Sacramento River (contd.)

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute														
				Channel Morphometry				Substrate					Cover				Habitat	
				Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Bed Substrate Dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Overhead Cover (% surface area)	Boulder Cover (%)	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep,>30 ft wide)
Mossbrae	1	4	595.9	PB	1.2	1.3	0.8-3.3	cob/grav	34	47	0	18	14	21	0.0	2	0	0
	2	4	527.6	PB	1.2	1.3	0.8-3.3	cob/grav	34	47	0	18	15	21	0.0	2	10	100
	3	4	460.2	PB	1.2	1.3	0.8-3.3	cob/grav	34	47	0	18	18	21	0.3	2	47	100
	4	4	402.9	PB	1.2	1.3	0.8-3.3	cob/grav	34	47	0	18	18	21	0.3	2	49	100
	5	4	698.0	PB	1.2	1.3	0.8-3.3	cob/grav	34	47	0	18	18	21	1.2	2	41	100
	6	4	574.5	PB	1.2	1.3	0.8-3.3	cob/grav	34	47	0	18	17	23	0.3	2	12	100
	7	4	576.1	PB	1.2	1.3	0.8-3.3	cob/grav	34	47	0	18	17	22	0.0	2	0	0
	8	4	508.7	PB	1.2	1.3	0.8-3.3	cob/grav	34	47	0	18	13	20	0.0	2	18	100
	9	4	324.6	ST	1.2	1.3	0.8-3.3	cob/grav	34	47	0	18	18	21	0.0	2	51	100
	10	4	490.7	ST	1.2	1.3	0.8-3.3	cob/grav	34	47	0	18	17	22	0.0	2	0	0
	11	4	437.1	ST	1.2	1.3	0.8-3.3	cob/grav	34	47	0	18	18	20	0.3	2	12	100
	12	4	645.9	ST	1.2	1.3	0.8-3.3	cob/grav	34	47	0	18	18	21	0.8	2	36	100
	13	5	730.6	ST	1.2	1.3	0.8-3.3	cob/grav	34	47	0	18	18	21	1.0	2	11	100

Table C-4. Video-Derived Chinook Salmon Rearing Attribute Metric Values for the Sacramento River (contd.)

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute														
				Channel Morphometry				Substrate					Cover				Habitat	
				Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Bed Substrate Dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Overhead Cover (% surface area)	Boulder Cover (%)	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep,>30 ft wide)
Dunsmuir	1	4	835.2	PB	1.0	1.7	0.8-3.3	grav/cob	48	39	0	15	14	14	0.2	1	17	100
	2	4	382.2	PB	1.0	1.7	0.8-3.3	grav/cob	48	39	0	15	15	16	0.4	1	15	100
	3	4	326.7	PB	1.0	1.7	0.8-3.3	grav/cob	48	39	0	15	17	16	0.2	2	38	100
	4	4	553.5	PB	1.0	1.7	0.8-3.3	grav/cob	48	39	0	15	17	14	0.0	1	13	100
	5	4	801.9	PB	1.0	1.7	0.8-3.3	grav/cob	48	39	0	15	20	14	1.0	1	0	0
	6	4	374.0	PB	1.0	1.7	0.8-3.3	grav/cob	48	39	0	15	15	16	0.4	1	27	100
	7	4	499.6	PB	1.0	1.7	0.8-3.3	grav/cob	48	39	0	15	15	16	0.0	1	35	100
	8	4	330.7	PB	1.0	1.7	0.8-3.3	grav/cob	48	39	0	15	18	15	0.0	2	0	0
	9	4	345.3	PB	1.0	1.7	0.8-3.3	grav/cob	48	39	0	15	15	16	0.1	1	15	100
	10	4	539.2	PB	1.0	1.8	0.8-3.3	grav/cob	49	46	0	15	15	16	0.0	1	24	100
	11	4	1,122.9	PB	1.0	1.8	0.8-3.3	grav/cob	49	46	0	15	18	15	0.0	2	0	0
	12	4	454.2	PB	1.0	1.8	0.8-3.3	grav/cob	49	46	0	15	19	16	0.0	2	0	0
	13	4	252.4	PB	1.0	1.8	0.8-3.3	grav/cob	49	46	0	15	15	16	0.0	1	31	100
	14	4	472.7	PB	1.0	1.8	0.8-3.3	grav/cob	49	46	0	15	14	14	0.0	1	36	100
	15	4	398.7	PB	1.0	1.8	0.8-3.3	grav/cob	49	46	0	15	15	16	0.0	1	12	100
	16	4	461.8	PB	1.0	1.8	0.8-3.3	grav/cob	49	46	0	15	15	16	0.0	1	16	100
	17	4	480.4	PB	1.0	1.8	0.8-3.3	grav/cob	49	46	0	15	18	15	0.0	2	0	0
	18	4	532.5	PB	1.0	1.8	0.8-3.3	grav/cob	49	46	0	15	15	16	0.0	1	9	100
	19	2	246.9	PB	1.0	1.8	0.8-3.3	grav/cob	49	46	0	15	22	21	0.0	2	0	0

Table C-4. Video-Derived Chinook Salmon Rearing Attribute Metric Values for the Sacramento River (contd.)

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute														
				Channel Morphometry				Substrate					Cover				Habitat	
				Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Bed Substrate Dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Overhead Cover (% surface area)	Boulder Cover (%)	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep,>30 ft wide)
Canyon	1	4	542.5	RP	0.9	1.78	0.8-3.3	grav/cob	54	33	0	18	11	15	0.2	2	15	100
	2	4	520.9	RP	0.9	1.78	0.8-3.3	grav/cob	54	33	0	18	10	13	1.5	1	53	100
	3	4	586.7	RP	0.9	1.78	0.8-3.3	grav/cob	54	33	0	18	14	14	0.0	2	48	100
	4	4	528.8	RP	0.9	1.78	0.8-3.3	grav/cob	54	33	0	18	10	13	0.6	1	52	100
	5	4	321.3	RP	0.9	1.78	0.8-3.3	grav/cob	54	33	0	18	14	14	0.2	2	13	100
	6	4	727.6	RP	0.9	1.78	3.3-6.6	grav/cob	54	33	0	18	7	11	0.0	1	82	100
	7	4	533.7	RP	0.9	1.78	0.8-3.3	grav/cob	54	33	0	18	10	13	0.0	1	49	100
	8	4	501.7	RP	0.9	1.78	0.8-3.3	grav/cob	54	33	0	18	16	15	0.2	2	26	100
	9	4	869.9	PB	0.9	1.78	0.8-3.3	grav/cob	54	36	0	18	10	12	1.3	1	27	100
	10	4	503.2	PB	0.9	1.78	0.8-3.3	grav/cob	54	36	0	18	14	14	0.2	2	19	100
	11	4	582.2	PB	0.9	1.78	0.8-3.3	grav/cob	54	36	0	18	14	14	0.0	2	26	100
	12	4	722.4	PB	0.9	1.78	0.8-3.3	grav/cob	54	36	0	18	17	15	0.2	2	0	0
	13	4	417.3	PB	0.9	1.78	0.8-3.3	grav/cob	54	36	0	18	10	13	0.0	1	46	100
	14	4	997.6	PB	0.9	1.78	0.8-3.3	grav/cob	54	36	0	18	14	14	0.6	2	10	100
	15	4	339.5	PB	0.9	1.78	0.8-3.3	grav/cob	54	36	0	18	14	14	0.0	2	25	100
	16	4	349.9	PB	0.9	1.78	0.8-3.3	grav/cob	54	36	0	18	14	14	0.7	2	49	100
	17	3	488.0	PB	0.9	1.78	0.8-3.3	grav/cob	54	36	0	18	16	15	0.0	2	0	0
	18	4	613.3	PB	0.9	1.78	0.8-3.3	grav/cob	53	44	0	18	17	15	0.4	2	0	0
	19	4	585.8	PB	0.9	1.78	0.8-3.3	grav/cob	53	44	0	18	14	14	0.0	2	25	100

Table C-4. Video-Derived Chinook Salmon Rearing Attribute Metric Values for the Sacramento River (contd.)

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute															
				Channel Morphometry				Substrate					Cover				Habitat	
				Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Bed Substrate Dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Overhead Cover (% surface area)	Boulder Cover (%)	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep,>30 ft wide)
Canyon	20	4	353.0	PB	0.9	1.78	0.8-3.3	grav/cob	53	44	0	18	17	16	0.2	2	0	0
	21	4	488.3	PB	0.9	1.78	0.8-3.3	grav/cob	53	44	0	18	10	12	0.0	1	54	100
	22	4	468.2	PB	0.9	1.78	0.8-3.3	grav/cob	53	44	0	18	17	15	0.0	2	0	0
	23	4	681.2	PB	0.9	1.78	0.8-3.3	grav/cob	53	44	0	18	10	13	0.0	1	38	100
	24	4	784.3	PB	0.9	1.78	0.8-3.3	grav/cob	53	44	0	18	14	14	0.0	2	10	100
	25	4	499.9	PB	0.9	1.78	0.8-3.3	grav/cob	53	44	0	18	10	12	1.7	1	46	100
	26	4	500.2	PB	0.9	1.78	0.8-3.3	grav/cob	53	44	0	18	10	13	0.4	1	33	100
Shotgun	1	4	371.6	RP	0.9	1.83	0.8-3.3	cob/grav	31	53	0	5	25	19	0.0	2	19	100
	2	4	379.5	RP	0.9	1.83	0.8-3.3	cob/grav	31	53	0	5	23	17	0.5	2	34	100
	3	4	712.3	RP	0.9	1.83	0.8-3.3	cob/grav	31	53	0	5	23	17	0.0	2	27	100
	4	4	603.5	RP	0.9	1.83	0.8-3.3	cob/grav	31	53	0	5	23	17	0.0	2	11	100
	5	4	417.6	RP	0.9	1.83	0.8-3.3	cob/grav	31	53	0	5	25	17	0.0	2	43	100
	6	4	749.8	RP	0.9	1.83	0.8-3.3	cob/grav	31	53	0	5	24	16	0.5	2	87	100
	7	4	539.5	RP	0.9	1.83	0.8-3.3	cob/grav	31	53	0	5	24	16	0.5	2	34	100
	8	4	335.3	RP	0.9	1.83	0.8-3.3	cob/grav	31	53	0	5	24	16	0.3	2	66	100
	9	4	629.4	RP	0.9	1.83	0.8-3.3	cob/grav	31	53	0	5	21	16	0.5	2	17	100
	10	4	445.3	RP	0.9	1.83	0.8-3.3	cob/grav	31	53	0	5	24	16	1.1	2	36	100
	11	4	235.9	RP	0.9	1.83	0.8-3.3	cob/grav	31	53	0	5	24	16	0.0	2	53	100
	12	4	413.0	RP	0.9	1.83	3.3-6.6	cob/grav	31	53	0	5	24	16	0.3	2	62	100

Table C-4. Video-Derived Chinook Salmon Rearing Attribute Metric Values for the Sacramento River (contd.)

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute														
				Channel Morphometry				Substrate					Cover				Habitat	
				Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Bed Substrate Dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Overhead Cover (% surface area)	Boulder Cover (%)	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep,>30 ft wide)
Shotgun	13	4	525.8	RP	0.9	1.83	0.8-3.3	cob/grav	31	53	0	5	18	13	0.0	1	73	100
	14	4	549.6	RP	0.9	1.83	0.8-3.3	cob/grav	41	47	0	5	19	16	0.0	2	12	100
	15	4	524.9	RP	0.9	1.83	3.3-6.6	cob/grav	41	47	0	5	24	16	0.0	2	69	100
	16	4	361.5	RP	0.9	1.83	0.8-3.3	cob/grav	41	47	0	5	23	17	0.0	2	28	100
	17	4	516.9	RP	0.9	1.83	3.3-6.6	cob/grav	41	47	0	5	20	15	1.1	2	77	100
	18	4	360.6	RP	0.9	1.83	3.3-6.6	cob/grav	41	47	0	5	22	15	0.0	2	52	100
	19	4	509.0	RP	0.9	1.83	0.8-3.3	cob/grav	41	47	0	5	24	16	1.1	2	67	100
	20	4	755.9	RP	0.9	1.83	0.8-3.3	cob/grav	41	47	0	5	22	15	0.5	2	47	100
	21	4	562.4	RP	0.9	1.83	0.8-3.3	cob/grav	41	47	0	5	24	16	3.0	2	25	100
	22	4	611.7	RP	0.9	1.83	0.8-3.3	cob/grav	41	47	0	5	25	17	0.8	2	54	100
	23	4	445.0	RP	0.9	1.83	0.8-3.3	cob/grav	41	47	0	5	22	16	0.8	2	91	100
	24	4	1,013.2	RP	0.9	1.83	0.8-3.3	cob/grav	41	47	0	5	25	17	1.9	2	16	100
	25	5	1,185.7	RP	0.9	1.83	0.8-3.3	cob/grav	41	47	0	5	21	17	0.3	2	32	100
North Salt	1	4	304.5	RP	0.6	1.75	0.8-3.3	cob/grav	34	42	0	38	10	11	0.0	2	68	100
	2	4	1,054.9	RP	0.6	1.75	0.8-3.3	cob/grav	34	42	0	38	9	10	0.0	2	70	100
	3	4	804.7	RP	0.6	1.75	0.8-3.3	cob/grav	34	42	0	38	7	8	0.0	1	45	100
	4	4	702.6	RP	0.6	1.75	0.8-3.3	cob/grav	34	42	0	38	10	11	0.0	2	44	100
	5	4	442.3	RP	0.6	1.75	0.8-3.3	cob/grav	34	42	0	38	10	12	0.0	2	24	100
	6	4	458.7	RP	0.6	1.75	3.3-6.6	cob/grav	34	42	0	38	9	9	0.3	2	56	100

Table C-4. Video-Derived Chinook Salmon Rearing Attribute Metric Values for the Sacramento River (contd.)

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute														
				Channel Morphometry				Substrate					Cover				Habitat	
				Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Bed Substrate Dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Overhead Cover (% surface area)	Boulder Cover (%)	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep,>30 ft wide)
North Salt	7	4	617.2	RP	0.6	1.75	0.8-3.3	cob/grav	34	42	0	38	10	11	0.0	2	35	100
	8	4	776.6	RP	0.6	1.75	0.8-3.3	cob/grav	34	42	0	38	7	7	0.0	1	90	100
	9	4	620.9	RP	0.6	1.75	0.8-3.3	cob/grav	34	42	0	38	10	11	0.0	2	50	100
	10	4	588.9	RP	0.6	1.75	0.8-3.3	cob/grav	34	42	0	38	7	8	0.0	1	49	100
	11	4	608.1	RP	0.6	1.75	0.8-3.3	cob/grav	36	42	1	38	9	9	0.0	2	44	100
	12	4	402.3	RP	0.6	1.75	0.8-3.3	cob/grav	36	42	1	38	11	15	0.0	2	21	100
	13	4	672.1	RP	0.6	1.75	0.8-3.3	cob/grav	36	42	1	38	7	8	1.0	1	37	100
	14	4	428.2	RP	0.6	1.75	0.8-3.3	cob/grav	36	42	1	38	10	11	1.3	2	44	100
	15	4	420.0	RP	0.6	1.75	3.3-6.6	cob/grav	36	42	1	38	6	5	0.0	1	78	100
	16	4	522.1	RP	0.6	1.75	0.8-3.3	cob/grav	36	42	1	38	9	9	0.3	2	48	100
	17	4	373.7	RP	0.6	1.75	0.8-3.3	cob/grav	36	42	1	38	10	11	0.0	2	69	100
	18	4	345.0	RP	0.6	1.75	0.8-3.3	cob/grav	36	42	1	38	10	12	1.3	2	26	100
	19	5	796.7	RP	0.6	1.75	0.8-3.3	cob/grav	36	42	1	38	10	10	0.3	2	32	100

Key:
% = percent
bld = boulder
CAS = cascade
cob = cobble
Fq = frequency
ft = feet
grav = gravel
LWD = large woody debris
m = meter
PB = plane-bed
RP = riffle pool
ST = step-pool

Table C-5. Video-Derived Chinook Salmon Rearing Attribute Metric Scores for the Sacramento River

Study Reach	Index Section	Attribute														
		Channel Morphometry				Substrate					Cover				Habitat	
		Channel Type	% Average Gradient	% Average Entrenchment	Mean Channel Depth Range	Bed Substrate Dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Overhead Cover (% surface area)	Boulder Cover	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep, >30 ft wide)
Box Canyon	1	1	3	1	3	2	3	3	3	3	1	2	1	2	1	0
	2	1	3	1	3	2	3	3	3	3	2	2	1	2	1	3
	3	1	3	1	3	2	3	3	3	3	1	2	1	2	1	3
	4	1	3	1	3	2	3	3	3	3	2	2	1	2	1	3
	5	1	3	1	3	2	3	3	3	3	1	2	1	2	1	3
	6	1	3	1	3	2	3	3	3	3	1	2	1	2	1	0
	7	1	3	1	3	2	3	3	3	3	1	2	1	2	1	3
	8	1	3	1	3	2	3	3	3	3	1	2	1	2	1	3
	9	1	3	1	3	2	3	3	3	3	1	2	1	2	1	3
	10	1	3	1	3	2	3	3	3	3	2	2	1	2	1	3
	11	1	3	1	3	2	3	3	3	3	2	2	1	2	1	3
	12	1	3	1	2	2	3	3	3	3	1	1	1	1	1	3
Mossbrae	1	2	3	1	3	3	3	3	3	3	2	3	1	2	1	0
	2	2	3	1	3	3	3	3	3	3	2	3	1	2	1	3
	3	2	3	1	3	3	3	3	3	3	2	3	1	2	1	3
	4	2	3	1	3	3	3	3	3	3	2	3	1	2	1	3
	5	2	3	1	3	3	3	3	3	3	2	3	1	2	1	3
	6	2	3	1	3	3	3	3	3	3	2	3	1	2	1	3

Table C-5. Video-Derived Chinook Salmon Rearing Attribute Metric Scores for the Sacramento River (contd.)

Study Reach	Index Section	Attribute														
		Channel Morphometry				Substrate					Cover				Habitat	
		Channel Type	% Average Gradient	% Average Entrenchment	Mean Channel Depth Range	Bed Substrate Dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Overhead Cover (% surface area)	Boulder Cover	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep, >30 ft wide)
Mossbrae	7	2	3	1	3	3	3	3	3	3	2	3	1	2	1	0
	8	2	3	1	3	3	3	3	3	3	2	3	1	2	1	3
	9	1	3	1	3	3	3	3	3	3	2	3	1	2	1	3
	10	1	3	1	3	3	3	3	3	3	2	3	1	2	1	0
	11	1	3	1	3	3	3	3	3	3	2	3	1	2	1	3
	12	1	3	1	3	3	3	3	3	3	2	3	1	2	1	3
	13	1	3	1	3	3	3	3	3	3	2	3	1	2	1	3
Dunsmuir	1	2	3	2	3	2	3	3	3	3	2	2	1	1	1	3
	2	2	3	2	3	2	3	3	3	3	2	2	1	1	1	3
	3	2	3	2	3	2	3	3	3	3	2	2	1	2	1	3
	4	2	3	2	3	2	3	3	3	3	2	2	1	1	1	3
	5	2	3	2	3	2	3	3	3	3	2	2	1	1	1	0
	6	2	3	2	3	2	3	3	3	3	2	2	1	1	1	3
	7	2	3	2	3	2	3	3	3	3	2	2	1	1	1	3
	8	2	3	2	3	2	3	3	3	3	2	2	1	2	1	0
	9	2	3	2	3	2	3	3	3	3	2	2	1	1	1	3
	10	2	3	2	3	2	3	3	3	3	2	2	1	1	1	3
	11	2	3	2	3	2	3	3	3	3	2	2	1	2	1	0

Table C-5. Video-Derived Chinook Salmon Rearing Attribute Metric Scores for the Sacramento River (contd.)

Study Reach	Index Section	Attribute														
		Channel Morphometry				Substrate					Cover				Habitat	
		Channel Type	% Average Gradient	% Average Entrenchment	Mean Channel Depth Range	Bed Substrate Dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Overhead Cover (% surface area)	Boulder Cover	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep, >30 ft wide)
Dunsmuir	12	2	3	2	3	2	3	3	3	3	2	2	1	2	1	0
	13	2	3	2	3	2	3	3	3	3	2	2	1	1	1	3
	14	2	3	2	3	2	3	3	3	3	2	2	1	1	1	3
	15	2	3	2	3	2	3	3	3	3	2	2	1	1	1	3
	16	2	3	2	3	2	3	3	3	3	2	2	1	1	1	3
	17	2	3	2	3	2	3	3	3	3	2	2	1	2	1	0
	18	2	3	2	3	2	3	3	3	3	2	2	1	1	1	3
	19	2	3	2	3	2	3	3	3	3	2	3	1	2	1	0
Canyon	1	3	3	2	3	2	3	3	3	3	2	2	1	2	1	3
	2	3	3	2	3	2	3	3	3	3	2	2	1	1	1	3
	3	3	3	2	3	2	3	3	3	3	2	2	1	2	1	3
	4	3	3	2	3	2	3	3	3	3	2	2	1	1	1	3
	5	3	3	2	3	2	3	3	3	3	2	2	1	2	1	3
	6	3	3	2	2	2	3	3	3	3	1	2	1	1	1	3
	7	3	3	2	3	2	3	3	3	3	2	2	1	1	1	3
	8	3	3	2	3	2	3	3	3	3	2	2	1	2	1	3
	9	2	3	2	3	2	3	3	3	3	2	2	1	1	1	3
	10	2	3	2	3	2	3	3	3	3	2	2	1	2	1	3

Table C-5. Video-Derived Chinook Salmon Rearing Attribute Metric Scores for the Sacramento River (contd.)

Study Reach	Index Section	Attribute														
		Channel Morphometry				Substrate					Cover				Habitat	
		Channel Type	% Average Gradient	% Average Entrenchment	Mean Channel Depth Range	Bed Substrate Dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Overhead Cover (% surface area)	Boulder Cover	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep, >30 ft wide)
Canyon	11	2	3	2	3	2	3	3	3	3	2	2	1	2	1	3
	12	2	3	2	3	2	3	3	3	3	2	2	1	2	1	0
	13	2	3	2	3	2	3	3	3	3	2	2	1	1	1	3
	14	2	3	2	3	2	3	3	3	3	2	2	1	2	1	3
	15	2	3	2	3	2	3	3	3	3	2	2	1	2	1	3
	16	2	3	2	3	2	3	3	3	3	2	2	1	2	1	3
	17	2	3	2	3	2	3	3	3	3	2	2	1	2	1	0
	18	2	3	2	3	2	3	3	3	3	2	2	1	2	1	0
	19	2	3	2	3	2	3	3	3	3	2	2	1	2	1	3
	20	2	3	2	3	2	3	3	3	3	2	2	1	2	1	0
	21	2	3	2	3	2	3	3	3	3	2	2	1	1	1	3
	22	2	3	2	3	2	3	3	3	3	2	2	1	2	1	0
	23	2	3	2	3	2	3	3	3	3	2	2	1	1	1	3
	24	2	3	2	3	2	3	3	3	3	2	2	1	2	1	3
	25	2	3	2	3	2	3	3	3	3	2	2	1	1	1	3
	26	2	3	2	3	2	3	3	3	3	2	2	1	1	1	3

Table C-5. Video-Derived Chinook Salmon Rearing Attribute Metric Scores for the Sacramento River (contd.)

Study Reach	Index Section	Attribute														
		Channel Morphometry				Substrate					Cover				Habitat	
		Channel Type	% Average Gradient	% Average Entrenchment	Mean Channel Depth Range	Bed Substrate Dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Overhead Cover (% surface area)	Boulder Cover	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep, >30 ft wide)
Shotgun	1	3	3	2	3	3	3	3	3	3	2	2	1	2	1	3
	2	3	3	2	3	3	3	3	3	3	2	2	1	2	1	3
	3	3	3	2	3	3	3	3	3	3	2	2	1	2	1	3
	4	3	3	2	3	3	3	3	3	3	2	2	1	2	1	3
	5	3	3	2	3	3	3	3	3	3	2	2	1	2	1	3
	6	3	3	2	3	3	3	3	3	3	2	2	1	2	1	3
	7	3	3	2	3	3	3	3	3	3	2	2	1	2	1	3
	8	3	3	2	3	3	3	3	3	3	2	2	1	2	1	3
	9	3	3	2	3	3	3	3	3	3	2	2	1	2	1	3
	10	3	3	2	3	3	3	3	3	3	2	2	1	2	1	3
	11	3	3	2	3	3	3	3	3	3	2	2	1	2	1	3
	12	3	3	2	2	3	3	3	3	3	2	2	1	2	1	3
	13	3	3	2	3	3	3	3	3	3	2	2	1	1	1	3
	14	3	3	2	3	3	3	3	3	3	2	2	1	2	1	3
	15	3	3	2	2	3	3	3	3	3	2	2	1	2	1	3
	16	3	3	2	3	3	3	3	3	3	2	2	1	2	1	3
	17	3	3	2	2	3	3	3	3	3	2	2	1	2	1	3
	18	3	3	2	2	3	3	3	3	3	2	2	1	2	1	3

Table C-5. Video-Derived Chinook Salmon Rearing Attribute Metric Scores for the Sacramento River (contd.)

Study Reach	Index Section	Attribute														
		Channel Morphometry				Substrate					Cover				Habitat	
		Channel Type	% Average Gradient	% Average Entrenchment	Mean Channel Depth Range	Bed Substrate Dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Overhead Cover (% surface area)	Boulder Cover	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep, >30 ft wide)
Shotgun	19	3	3	2	3	3	3	3	3	3	2	2	1	2	1	3
	20	3	3	2	3	3	3	3	3	3	2	2	1	2	1	3
	21	3	3	2	3	3	3	3	3	3	2	2	1	2	1	3
	22	3	3	2	3	3	3	3	3	3	2	2	1	2	1	3
	23	3	3	2	3	3	3	3	3	3	2	2	1	2	1	3
	24	3	3	2	3	3	3	3	3	3	2	2	1	2	1	3
	25	3	3	2	3	3	3	3	3	3	2	2	1	2	1	3
North Salt	1	3	3	2	3	3	3	3	3	2	2	2	1	2	1	3
	2	3	3	2	3	3	3	3	3	2	1	2	1	2	1	3
	3	3	3	2	3	3	3	3	3	2	1	2	1	1	1	3
	4	3	3	2	3	3	3	3	3	2	2	2	1	2	1	3
	5	3	3	2	3	3	3	3	3	2	2	2	1	2	1	3
	6	3	3	2	2	3	3	3	3	2	1	2	1	2	1	3
	7	3	3	2	3	3	3	3	3	2	2	2	1	2	1	3
	8	3	3	2	3	3	3	3	3	2	1	2	1	1	1	3
	9	3	3	2	3	3	3	3	3	2	2	2	1	2	1	3
	10	3	3	2	3	3	3	3	3	2	1	2	1	1	1	3
	11	3	3	2	3	3	3	3	3	2	1	2	1	2	1	3

Table C-5. Video-Derived Chinook Salmon Rearing Attribute Metric Scores for the Sacramento River (contd.)

Study Reach	Index Section	Attribute														
		Channel Morphometry				Substrate					Cover				Habitat	
		Channel Type	% Average Gradient	% Average Entrenchment	Mean Channel Depth Range	Bed Substrate Dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Overhead Cover (% surface area)	Boulder Cover	LWD (Overall Fq/100 m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep, >30 ft wide)
North Salt	12	3	3	2	3	3	3	3	3	2	2	2	1	2	1	3
	13	3	3	2	3	3	3	3	3	2	1	2	1	1	1	3
	14	3	3	2	3	3	3	3	3	2	2	2	1	2	1	3
	15	3	3	2	2	3	3	3	3	2	1	2	1	1	1	3
	16	3	3	2	3	3	3	3	3	2	1	2	1	2	1	3
	17	3	3	2	3	3	3	3	3	2	2	2	1	2	1	3
	18	3	3	2	3	3	3	3	3	2	2	2	1	2	1	3
	19	3	3	2	3	3	3	3	3	2	2	2	1	2	1	3

Key:
% = percent
0 = “none”
1 = “poor”
2 = “fair”
3 = “good”
Fq = frequency
ft = feet
LWD = large woody debris
m = meter

Table C-6. Video-Derived Chinook Salmon Rearing Mean Attribute Scores for the Sacramento River by Index Section (values are means of attribute metrics)

Study Reach	Index Section	Attribute			
		Channel Morphometry	Substrate	Cover	Habitat
Box Canyon	1	2.0	2.8	1.5	0.5
	2	2.0	2.8	1.8	2.0
	3	2.0	2.8	1.5	2.0
	4	2.0	2.8	1.8	2.0
	5	2.0	2.8	1.5	2.0
	6	2.0	2.8	1.5	0.5
	7	2.0	2.8	1.5	2.0
	8	2.0	2.8	1.5	2.0
	9	2.0	2.8	1.5	2.0
	10	2.0	2.8	1.8	2.0
	11	2.0	2.8	1.8	2.0
	12	1.8	2.8	1.0	2.0
Mossbrae	1	2.3	3.0	2.0	0.5
	2	2.3	3.0	2.0	2.0
	3	2.3	3.0	2.0	2.0
	4	2.3	3.0	2.0	2.0
	5	2.3	3.0	2.0	2.0
	6	2.3	3.0	2.0	2.0
	7	2.3	3.0	2.0	0.5
	8	2.3	3.0	2.0	2.0
	9	2.0	3.0	2.0	2.0
	10	2.0	3.0	2.0	0.5
	11	2.0	3.0	2.0	2.0
	12	2.0	3.0	2.0	2.0
	13	2.0	3.0	2.0	2.0

Table C-6. Video-Derived Chinook Salmon Rearing Mean Attribute Scores for the Sacramento River by Index Section (values are means of attribute metrics) (contd.)

Study Reach	Index Section	Attribute			
		Channel Morphometry	Substrate	Cover	Habitat
Dunsmuir	1	2.5	2.8	1.5	2.0
	2	2.5	2.8	1.5	2.0
	3	2.5	2.8	1.8	2.0
	4	2.5	2.8	1.5	2.0
	5	2.5	2.8	1.5	0.5
	6	2.5	2.8	1.5	2.0
	7	2.5	2.8	1.5	2.0
	8	2.5	2.8	1.8	0.5
	9	2.5	2.8	1.5	2.0
	10	2.5	2.8	1.5	2.0
	11	2.5	2.8	1.8	0.5
	12	2.5	2.8	1.8	0.5
	13	2.5	2.8	1.5	2.0
	14	2.5	2.8	1.5	2.0
	15	2.5	2.8	1.5	2.0
	16	2.5	2.8	1.5	2.0
	17	2.5	2.8	1.8	0.5
	18	2.5	2.8	1.5	2.0
	19	2.5	2.8	2.0	0.5
Canyon	1	2.8	2.8	1.8	2.0
	2	2.8	2.8	1.5	2.0
	3	2.8	2.8	1.8	2.0
	4	2.8	2.8	1.5	2.0
	5	2.8	2.8	1.8	2.0
	6	2.5	2.8	1.3	2.0
	7	2.8	2.8	1.5	2.0
	8	2.8	2.8	1.8	2.0
	9	2.5	2.8	1.5	2.0
	10	2.5	2.8	1.8	2.0
	11	2.5	2.8	1.8	2.0
	12	2.5	2.8	1.8	0.5
	13	2.5	2.8	1.5	2.0
	14	2.5	2.8	1.8	2.0

Table C-6. Video-Derived Chinook Salmon Rearing Mean Attribute Scores for the Sacramento River by Index Section (values are means of attribute metrics) (contd.)

Study Reach	Index Section	Attribute			
		Channel Morphometry	Substrate	Cover	Habitat
Canyon	15	2.5	2.8	1.8	2.0
	16	2.5	2.8	1.8	2.0
	17	2.5	2.8	1.8	0.5
	18	2.5	2.8	1.8	0.5
	19	2.5	2.8	1.8	2.0
	20	2.5	2.8	1.8	0.5
	21	2.5	2.8	1.5	2.0
	22	2.5	2.8	1.8	0.5
	23	2.5	2.8	1.5	2.0
	24	2.5	2.8	1.8	2.0
	25	2.5	2.8	1.5	2.0
	26	2.5	2.8	1.5	2.0
Shotgun	1	2.8	3.0	1.8	2.0
	2	2.8	3.0	1.8	2.0
	3	2.8	3.0	1.8	2.0
	4	2.8	3.0	1.8	2.0
	5	2.8	3.0	1.8	2.0
	6	2.8	3.0	1.8	2.0
	7	2.8	3.0	1.8	2.0
	8	2.8	3.0	1.8	2.0
	9	2.8	3.0	1.8	2.0
	10	2.8	3.0	1.8	2.0
	11	2.8	3.0	1.8	2.0
	12	2.5	3.0	1.8	2.0
	13	2.8	3.0	1.5	2.0
	14	2.8	3.0	1.8	2.0
	15	2.5	3.0	1.8	2.0
	16	2.8	3.0	1.8	2.0
	17	2.5	3.0	1.8	2.0
	18	2.5	3.0	1.8	2.0
	19	2.8	3.0	1.8	2.0
	20	2.8	3.0	1.8	2.0
	21	2.8	3.0	1.8	2.0

Table C-6. Video-Derived Chinook Salmon Rearing Mean Attribute Scores for the Sacramento River by Index Section (values are means of attribute metrics) (contd.)

Study Reach	Index Section	Attribute			
		Channel Morphometry	Substrate	Cover	Habitat
Shotgun	22	2.8	3.0	1.8	2.0
	23	2.8	3.0	1.8	2.0
	24	2.8	3.0	1.8	2.0
	25	2.8	3.0	1.8	2.0
North Salt	1	2.8	2.8	1.8	2.0
	2	2.8	2.8	1.5	2.0
	3	2.8	2.8	1.3	2.0
	4	2.8	2.8	1.8	2.0
	5	2.8	2.8	1.8	2.0
	6	2.5	2.8	1.5	2.0
	7	2.8	2.8	1.8	2.0
	8	2.8	2.8	1.3	2.0
	9	2.8	2.8	1.8	2.0
	10	2.8	2.8	1.3	2.0
	11	2.8	2.8	1.5	2.0
	12	2.8	2.8	1.8	2.0
	13	2.8	2.8	1.3	2.0
	14	2.8	2.8	1.8	2.0
	15	2.5	2.8	1.3	2.0
	16	2.8	2.8	1.5	2.0
	17	2.8	2.8	1.8	2.0
	18	2.8	2.8	1.8	2.0
	19	2.8	2.8	1.8	2.0

Key:
0 = “none”
1 = “poor”
2 = “fair”
3 = “good”

Table C-7. Aerial Video-Derived Estimates of Potential Chinook Salmon Spawning Habitat Area and Potential Spawner Capacity, as the Number of Female Salmon, in the Upper Sacramento River Between Shasta Lake and Box Canyon Dam

Study Reach	*Habitat Unit*	*Number Delineated Spawning Habitat Features*	*Spawning Habitat Area m^2*	*Dominant/ Subdominant Bed Composition Correction*	*Estimated Spawner Capacity (number of females)*		
					20 m^2 Spawning Territory	*10 m^2 Spawning Territory*	*6 m^2 Spawning Territory*
Baseflow Stage							
North Salt	*3*	*1*	*111.5*	*0.5*	*3*	*6*	*9*
	7	*1*	*836.1*	*0.5*	*21*	*42*	*70*
	13	*1*	*74.3*	*0.1*	*0*	*0*	*1*
	15	*1*	*92.9*	*0.5*	*2*	*5*	*8*
	23	*1*	*46.5*	*0.5*	*1*	*2*	*4*
	27	*1*	*13.9*	*1.0*	*1*	*1*	*2*
	30	*1*	*60.4*	*0.5*	*2*	*3*	*5*
	34	*2*	*130.1*	*0.5*	*3*	*7*	*11*
	37	*1*	*111.5*	*0.5*	*3*	*6*	*9*
	40	*1*	*51.1*	*0.5*	*1*	*3*	*4*
	41	*2*	*116.1*	*0.5*	*3*	*6*	*10*
	43	*1*	*63.2*	*0.5*	*2*	*3*	*5*
	45	*1*	*31.2*	*0.5*	*1*	*2*	*3*
	49	*1*	*37.2*	*0.1*	*0*	*0*	*0*
	56	*1*	*130.1*	*0.5*	*3*	*7*	*11*
	61	*1*	*232.3*	*0.5*	*6*	*12*	*19*

Table C-7. Aerial Video-Derived Estimates of Potential Chinook Salmon Spawning Habitat Area and Potential Spawner Capacity, as the Number of Female Salmon, in the Upper Sacramento River Between Shasta Lake and Box Canyon Dam (contd.)

Study Reach	Habitat Unit	Number Delineated Spawning Habitat Features	Spawning Habitat Area m^2	Dominant/ Subdominant Bed Composition Correction	Estimated Spawner Capacity (number of females)		
					20 m^2 Spawning Territory	10 m^2 Spawning Territory	6 m^2 Spawning Territory
Shotgun	84	1	241.5	0.5	6	12	20
	95	1	37.2	0.5	1	2	3
	99	1	185.8	0.5	5	9	15
	101	1	65	0.1	0	0	1
	107	1	75.3	0.5	2	4	6
	108	1	24.5	0.5	1	1	2
	115	1	125.4	0.5	3	6	10
	123	2	157.9	0.1	0	0	3
	125	1	92.9	0.5	2	5	8
	131	1	53.9	0.5	1	3	4
	133	1	83.6	0.5	2	4	7
	141	1	92.9	0.5	2	5	8
	144	1	20.9	0.1	0	0	0
Canyon	181	1	14.4	0.5	1	1	1
	183	1	185.8	0.5	5	9	15
	184	1	23.2	0.5	1	1	2
	185	1	130.1	1.0	7	13	22
	203	1	81.8	0.5	2	4	7
	208	1	139.4	0.5	3	7	12
	221	1	46.5	0.5	1	2	4
	222	7	31.6	0.5	4	4	4
	236	1	92.9	1.0	5	9	15

Study Reach	Habitat Unit	Number Delineated Spawning Habitat Features	Spawning Habitat Area m^2	Dominant/ Subdominant Bed Composition Correction	Estimated Spawner Capacity (number of females)		
					20 m^2 Spawning Territory	10 m^2 Spawning Territory	6 m^2 Spawning Territory
	249	1	9.3	1.0	1	1	2

Table C-7. Aerial Video-Derived Estimates of Potential Chinook Salmon Spawning Habitat Area and Potential Spawner Capacity, as the Number of Female Salmon, in the Upper Sacramento River Between Shasta Lake and Box Canyon Dam (contd.)

Study Reach	Habitat Unit	Number Delineated Spawning Habitat Features	Spawning Habitat Area m^2	Dominant/ Subdominant Bed Composition Correction	Estimated Spawner Capacity (number of females)		
					20 m^2 Spawning Territory	10 m^2 Spawning Territory	6 m^2 Spawning Territory
Canyon	249	1	74.3	1.0	4	7	12
	252	1	65	1.0	3	7	11
	259	1	23.2	1.0	1	2	4
	263	1	37.2	0.5	1	2	3
	270	1	20.4	0.5	1	1	2
	271	1	115.2	1.0	6	12	19
	273	1	147.7	1.0	7	15	25
	275	1	105	1.0	5	11	18
Dunsmuir	284	1	126.8	1.0	6	13	21
	295	1	92.9	0.5	2	5	8
	299	1	156.1	0.5	4	8	13
	317	1	37.2	1.0	2	4	6
	322	1	44.6	1.0	2	4	7
	329	1	46.5	1.0	2	5	8
	335	1	55.7	1.0	3	6	9

Study Reach	Habitat Unit	Number Delineated Spawning Habitat Features	Spawning Habitat Area m^2	Dominant/ Subdominant Bed Composition Correction	Estimated Spawner Capacity (number of females)		
					20 m^2 Spawning Territory	10 m^2 Spawning Territory	6 m^2 Spawning Territory
	338	1	139.4	1.0	7	14	23
	345	1	55.7	1.0	3	6	9

Table C-7. Aerial Video-Derived Estimates of Potential Chinook Salmon Spawning Habitat Area and Potential Spawner Capacity, as the Number of Female Salmon, in the Upper Sacramento River Between Shasta Lake and Box Canyon Dam (contd.)

Study Reach	Habitat Unit	Number Delineated Spawning Habitat Features	Spawning Habitat Area m^2	Dominant/ Subdominant Bed Composition Correction	Estimated Spawner Capacity (number of females)		
					20 m^2 Spawning Territory	10 m^2 Spawning Territory	6 m^2 Spawning Territory
Mossbrae	354	1	13.9	0.5	1	1	1
	359	1	37.2	1.0	2	4	6
	361	1	76.6	1.0	4	8	13
	369	1	83.6	0.5	2	4	7
	371	1	41.8	0.5	1	2	3
	400	1	46.5	0.5	1	2	4
	403	1	25.6	0.1	0	0	0
Box Canyon	412	1	14.9	1.0	1	1	2
	419	1	69.7	1.0	3	7	12
	424	3	12.6	0.5	2	2	2
	425	1	102.2	0.5	3	5	9
Ordinary High Water Stage							
North Salt	3	1	130.1	0.5	3	7	11
	7	1	836.1	0.5	21	42	70
	13	1	74.3	0.1	0	0	1
	15	1	92.9	0.5	2	5	8
	23	2	102.2	0.5	3	5	9
	27	1	23.2	1.0	1	2	4
	30	1	60.4	0.5	2	3	5
	34	3	185.8	0.5	5	9	15
	37	1	111.5	0.5	3	6	9
	38	1	41.8	0.1	0	0	0

Study Reach	Habitat Unit	Number Delineated Spawning Habitat Features	Spawning Habitat Area m^2	Dominant/ Subdominant Bed Composition Correction	Estimated Spawner Capacity (number of females)		
					20 m^2 Spawning Territory	10 m^2 Spawning Territory	6 m^2 Spawning Territory
	40	1	51.1	0.5	1	3	4

Table C-7. Aerial Video-Derived Estimates of Potential Chinook Salmon Spawning Habitat Area and Potential Spawner Capacity, as the Number of Female Salmon, in the Upper Sacramento River Between Shasta Lake and Box Canyon Dam (contd.)

Study Reach	Habitat Unit	Number Delineated Spawning Habitat Features	Spawning Habitat Area m^2	Dominant/ Subdominant Bed Composition Correction	Estimated Spawner Capacity (number of females)		
					20 m^2 Spawning Territory	10 m^2 Spawning Territory	6 m^2 Spawning Territory
North Salt	41	3	213.7	0.5	5	11	18
	43	1	79	0.5	2	4	7
	45	1	46.5	0.5	1	2	4
	49	2	74.3	0.1	0	0	0
	56	1	130.1	0.5	3	7	11
	61	1	232.3	0.5	6	12	19
Shotgun	84	1	241.5	0.5	6	12	20
	95	2	111.5	0.5	3	6	9
	97	1	41.8	0.5	1	2	3
	99	1	325.2	0.5	8	16	27
	101	1	83.6	0.1	0	0	1
	105	1	13.9	0.1	0	0	0
	107	2	99.8	0.5	2	5	8
	108	0	24.5	0.5	1	1	2
	115	1	125.4	0.5	3	6	10
	123	3	315.9	0.1	0	3	5

Study Reach	Habitat Unit	Number Delineated Spawning Habitat Features	Spawning Habitat Area m^2	Dominant/ Subdominant Bed Composition Correction	Estimated Spawner Capacity (number of females)		
					20 m^2 Spawning Territory	10 m^2 Spawning Territory	6 m^2 Spawning Territory
	125	1	118.7	0.5	3	6	10
	131	1	53.9	0.5	1	3	4
	133	1	83.6	0.5	2	4	7
	141	1	236.9	0.5	6	12	20
	144	1	27.9	0.1	0	0	0

Table C-7. Aerial Video-Derived Estimates of Potential Chinook Salmon Spawning Habitat Area and Potential Spawner Capacity, as the Number of Female Salmon, in the Upper Sacramento River Between Shasta Lake and Box Canyon Dam (contd.)

Study Reach	Habitat Unit	Number Delineated Spawning Habitat Features	Spawning Habitat Area m^2	Dominant/ Subdominant Bed Composition Correction	Estimated Spawner Capacity (number of females)		
					20 m^2 Spawning Territory	10 m^2 Spawning Territory	6 m^2 Spawning Territory
Canyon	181	1	14.4	0.5	1	1	1
	183	1	185.8	0.5	5	9	15
	184	1	23.2	0.5	1	1	2
	185	1	130.1	1.0	7	13	22
	203	1	81.8	0.5	2	4	7
	208	1	139.4	0.5	3	7	12
	221	1	46.5	0.5	1	2	4
	222	6	31.6	0.5	3	3	3
	236	1	157.9	1.0	8	16	26
	249	0	9.3	1.0	0	1	2

Study Reach	Habitat Unit	Number Delineated Spawning Habitat Features	Spawning Habitat Area m^2	Dominant/ Subdominant Bed Composition Correction	Estimated Spawner Capacity (number of females)		
					20 m^2 Spawning Territory	10 m^2 Spawning Territory	6 m^2 Spawning Territory
	249	1	130.1	1.0	7	13	22
	252	1	102.2	1.0	5	10	17
	259	1	23.2	1.0	1	2	4
	263	1	46.5	0.5	1	2	4
	270	1	20.4	0.5	1	1	2
	271	1	175.6	1.0	9	18	29
	273	1	167.2	1.0	8	17	28
	275	1	120.8	1.0	6	12	20

Table C-7. Aerial Video-Derived Estimates of Potential Chinook Salmon Spawning Habitat Area and Potential Spawner Capacity, as the Number of Female Salmon, in the Upper Sacramento River Between Shasta Lake and Box Canyon Dam (contd.)

Study Reach	Habitat Unit	Number Delineated Spawning Habitat Features	Spawning Habitat Area m^2	Dominant/ Subdominant Bed Composition Correction	Estimated Spawner Capacity (number of females)		
					20 m^2 Spawning Territory	10 m^2 Spawning Territory	6 m^2 Spawning Territory
Dunsmuir	284	1	167.2	1.0	8	17	28
	295	1	92.9	0.5	2	5	8
	299	1	167.2	0.5	4	8	14
	317	1	37.2	1.0	2	4	6
	322	1	53.4	1.0	3	5	9
	329	1	46.5	1.0	2	5	8
	335	1	55.7	1.0	3	6	9
	338	1	139.4	1.0	7	14	23
	345	1	83.6	1.0	4	8	14
Mossbrae	354	1	13.9	0.5	1	1	1
	359	1	41.8	1.0	2	4	7
	361	1	76.6	1.0	4	8	13
	369	1	83.6	0.5	2	4	7
	371	1	41.8	0.5	1	2	3
	400	1	46.5	0.5	1	2	4
	403	1	27.9	0.1	0	0	0
Box Canyon	412	1	14.9	1.0	1	1	2
	419	1	69.7	1.0	3	7	12
	424	3	12.6	0.5	2	2	2
	425	1	130.1	0.5	3	7	11

Key:
m^2 = square meter

Table C-8. Field-derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Values for the Sacramento River

Study Reach	Study Site	Index Section	Number of Channel Units	Index Section Length (m)	Attribute											
					Channel Morphometry				Substrate					Habitat		
					Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Bed Substrate dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Ratio (proportion of pools in section)	Average Spawning Patch Size (m^2)	Average Max Pool Depth (ft)
Box Canyon	Cantara1	1	3	292	ST	2.0	1.2	0.9	grav/cob	50	31	0	38	15	33	5.3
	Cantara2	1	4	237	ST	1.3	1.2	1.8	grav/cob	52	37	1	5	40	57	7.4
		2	4	649	ST	1.5	1.2	0.9	grav/cob	51	34	1	18	5	14	6.8
		3	2	105	ST	1.3	1.2	1.7	cob/grav	24	45	0	18	36	0	6.0
Mossbrae	Mossbrae	1	4	384	PB	1.3	1.3	1.7	cob/grav	33	52	0	18	5	28	3.8
		2	4	417	PB	1.9	1.3	1.6	cob/grav	35	41	0	18	0	0	0.0
		3	2	249	PB	1.5	1.3	1.8	cob/grav	34	47	0	18	0	0	0.0
Dunsmuir	Dunsmuir1	1	4	622	PB	1.9	1.7	1.5	grav/cob	49	46	0	38	0	15	0.0
	Dunsmuir2	1	4	421	PB	1.3	1.8	1.5	cob/grav	36	51	0	5	16	51	5.5
		2	3	389	PB	0.9	1.8	1.5	grav/cob	59	26	0	5	30	100	5.6
Canyon	Canyon3	1	4	342	PB	1.3	2	1.3	grav/cob	53	44	0	18	0	23	0.0
		2	3	458	PB	2.7	2	1.8	grav/cob	77	19	0	18	8	53	5.5
	Canyon2	1	4	614	RP	1.3	1.6	1.3	grav/cob	46	44	0	5	11	111	5.7
		2	2	332	RP	0.8	1.6	1.2	grav/cob	69	22	1	5	0	11	0.0
	Canyon1	1	4	365	RP	1.4	1.5	1.5	grav/cob	63	33	1	18	29	14	7.8
		2	4	261	RP	1.5	1.5	2.2	grav/cob	50	40	1	18	56	56	5.9
		3	1	63	RP	2.0	1.5	0.7	grav/cob	50	40	1	18	0	0	0.0

Table C-8. Field-derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Values for the Sacramento River (contd.)

Study Reach	Study Site	Index Section	Number of Channel Units	Index Section Length (m)	Attribute											
					Channel Morphometry				Substrate					Habitat		
					Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Bed Substrate dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Ratio (proportion of pools in section)	Average Spawning Patch Size (m^2)	Average Max Pool Depth (ft)
Shotgun	Shotgun2	1	4	327	RP	1.3	2.1	2.1	cob/grav	39	47	1	5	7	125	5.2
		2	2	481	RP	1.3	2.1	1.5	cob/grav	35	56	0	5	0	0	0.0
	Shotgun1	1	4	320	RP	0.9	1.7	1.8	cob/grav	19	46	0	5	0	0	0.0
		2	4	513	RP	1.3	1.7	2.0	cob/grav	44	46	0	5	21	65	15.0
North Salt	NorthSalt2	1	4	391	RP	0.7	2.6	2.1	cob/grav	25	45	0	38	26	0	10.2
		2	4	399	RP	1.2	2.6	2.9	cob/grav	38	43	1	38	36	77	10.5
	NorthSalt1	1	4	660	RP	1.8	1.6	1.7	cob/grav	36	34	0	38	0	0	0.0
		2	4	549	RP	0.9	1.6	1.5	cob/grav	32	50	0	38	33	93	12.0

Key:
% = percent
bld = boulder
CAS = cascade
cob = cobble
ft = feet
grav = gravel
m = meter
m^2 = square meter
PB = plane-bed
RP = riffle pool
ST = step-pool

Table C-9. Field-derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Scores for the Sacramento River

Study Reach	Study Site	Index Section	Number of Channel Units	Index Section Length (m)	Attribute											
					Channel Morphometry				Substrate					Habitat		
					Channel Type	Average Gradient	Average Entrenchment	Mean Channel Depth	Bed Substrate dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Ratio (proportion of pools in section)	Average Spawning Patch Size	Average Max Pool Depth
Box Canyon	Cantara1	1	3	292	1	3	1	3	3	3	3	3	2	2	3	2
	Cantara2	1	4	237	1	3	1	3	3	3	3	3	3	3	3	2
		2	4	649	1	3	1	3	3	3	3	3	3	1	3	2
		3	2	105	1	3	1	3	3	2	2	3	3	2	0	2
Mossbrae	Mossbrae	1	4	384	2	3	1	3	3	3	2	3	3	1	3	1
		2	4	417	2	3	1	3	3	3	2	3	3	1	0	0
		3	2	249	2	3	1	3	3	3	2	3	3	1	0	0
Dunsmuir	Dunsmuir1	1	4	622	2	3	2	3	3	3	2	3	2	1	3	0
	Dunsmuir2	1	4	421	2	3	2	3	3	3	2	3	3	1	3	2
		2	3	389	2	3	2	3	3	3	3	3	3	2	3	2
Canyon	Canyon3	1	4	342	2	3	2	3	3	3	2	3	3	1	3	0
		2	3	458	2	3	2	3	3	3	2	3	3	1	3	2
	Canyon2	1	4	614	3	3	2	3	3	3	2	3	3	1	3	2
		2	2	332	3	3	2	3	3	3	3	3	3	1	3	0
	Canyon1	1	4	365	3	3	2	3	3	3	3	3	3	2	3	2
		2	4	261	3	3	2	3	3	3	3	3	3	3	3	2
		3	1	63	3	3	2	1	3	3	3	3	3	1	0	0

Table C-9. Field-derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Scores for the Sacramento River (contd.)

Study Reach	Study Site	Index Section	Number of Channel Units	Index Section Length (m)	Attribute											
					Channel Morphometry				Substrate					Habitat		
					Channel Type	Average Gradient	Average Entrenchment	Mean Channel Depth	Bed Substrate dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Ratio (proportion of pools in section)	Average Spawning Patch Size	Average Max Pool Depth
Shotgun	Shotgun2	1	4	327	3	3	3	3	3	3	2	3	3	1	3	2
		2	2	481	3	3	3	3	3	3	2	3	3	1	0	0
	Shotgun1	1	4	320	3	3	2	3	3	2	2	3	3	1	0	0
		2	4	513	3	3	2	3	3	3	2	3	3	2	3	3
North Salt	NorthSalt2	1	4	391	3	3	3	3	3	2	2	3	2	2	0	3
		2	4	399	3	3	3	3	3	3	2	3	2	2	3	3
	NorthSalt1	1	4	660	3	3	2	3	3	3	3	3	2	1	0	0
		2	4	549	3	3	2	3	3	3	2	3	2	2	3	3

Key:
% = percent
0 = “none”
1 = “poor”
2 = “fair”
3 = “good”
m = meter

Table C-10. Mean Field-derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Scores for the Sacramento River by Index Section and Study Site

Study Reach	Study Site	Index Section	Attribute		
			Channel Morphometry	Substrate	Habitat
Box Canyon	Cantara1	1	2.0	2.8	2.3
	Cantara2	1	2.0	3.0	2.7
		2	2.0	3.0	2.0
		3	2.0	2.6	1.3
Mossbrae	Mossbrae	1	2.3	2.8	1.7
		2	2.3	2.8	0.3
		3	2.3	2.8	0.3
Dunsmuir	Dunsmuir1	1	2.5	2.6	1.3
	Dunsmuir2	1	2.5	2.8	2.0
		2	2.5	3.0	2.3
Canyon	Canyon3	1	2.5	2.8	1.3
		2	2.5	2.8	2.0
	Canyon2	1	2.8	2.8	2.0
		2	2.8	3.0	1.3
	Canyon1	1	2.8	3.0	2.3
		2	2.8	3.0	2.7
		3	2.3	3.0	0.3
Shotgun	Shotgun2	1	3.0	2.8	2.0
		2	3.0	2.8	0.3
	Shotgun1	1	2.8	2.6	0.3
		2	2.8	2.8	2.7
North Salt	NorthSalt2	1	3.0	2.4	1.7
		2	3.0	2.6	2.7
	NorthSalt1	1	2.8	2.8	0.3
		2	2.8	2.6	2.7

Key:
1 = “poor”
2 = “fair”
3 = “good”

Table C-11. Field-derived Chinook Salmon Rearing Attribute Metric Values for the Sacramento River

Study Reach	Study Site	Index Section	Number of Channel Units	Index Section Length (m)	Attribute															
					Channel Morphometry				Substrate					Cover				Habitat		
					Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Bed Substrate dominant/subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Overhead Cover (% surface area)	Boulder Cover (%)	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep,>30 ft wide)
Box Canyon	Cantara1	1	3	292	ST	2.0	1.2	2.5	bld/cob	50	31	0	38	9	16	0.7	2	15	100
	Cantara2	1	4	237	ST	1.3	1.2	2.8	cob/bld	52	37	1	5	4	10	0.0	2	40	100
		2	4	649	ST	1.5	1.2	2.6	cob/grav	51	34	1	18	14	7	8.0	2	26	100
		3	2	105	ST	1.3	1.2	3.1	cob/grav	24	45	0	18	7	4	0.0	2	37	100
Mossbrae	Mossbrae	1	4	384	PB	1.3	1.3	1.9	cob/grav	33	52	0	18	17	25	0.8	2	5	100
		2	4	417	PB	1.9	1.3	2.0	cob/grav	35	41	0	18	14	21	0.8	2	0	100
		3	2	249	PB	1.5	1.3	1.8	bld/cob	34	47	0	18	10	11	0.5	2	0	100
Dunsmuir	Dunsmuir1	1	4	622	PB	1.9	1.7	2.0	cob/bld	49	46	0	38	21	21	0.0	2	0	100
	Dunsmuir2	1	4	421	PB	1.3	1.8	2.4	cob/grav	36	51	0	5	15	15	0.5	2	16	100
		2	3	389	PB	0.9	1.8	2.7	cob/grav	59	26	0	5	10	11	0.5	1	30	100
Canyon	Canyon3	1	4	342	PB	1.3	2.0	1.7	cob/grav	53	44	0	18	32	10	2.3	2	0	100
		2	3	458	PB	2.7	2.0	2.3	cob/grav	77	19	0	18	18	22	3.5	1	8	100
	Canyon2	1	4	614	RP	1.3	1.6	1.8	cob/bld	46	44	0	5	10	12	0.5	2	11	100
		2	2	332	RP	0.8	1.6	1.3	cob/grav	69	22	1	5	11	15	0.2	2	0	100
	Canyon1	1	4	365	RP	1.4	1.5	2.2	cob/grav	63	33	1	18	12	20	0.8	2	29	100
		2	4	261	RP	1.5	1.5	2.5	bld/cob	50	40	1	18	7	6	0.6	2	56	100

Study Reach	Study Site	Index Section	Number of Channel Units	Index Section Length (m)	Attribute															
					Channel Morphometry				Substrate					Cover				Habitat		
					Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Bed Substrate dominant/subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Overhead Cover (% surface area)	Boulder Cover (%)	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep,>30 ft wide)
		3	1	63	RP	2.0	1.5	0.7	grav/cob	50	40	1	18	8	26	0.0	2	0	100

Table C-11. Field-derived Chinook Salmon Rearing Attribute Metric Values for the Sacramento River (contd.)

Study Reach	Study Site	Index Section	Number of Channel Units	Index Section Length (m)	Attribute															
					Channel Morphometry				Substrate					Cover				Habitat		
					Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Bed Substrate dominant/subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Overhead Cover (% surface area)	Boulder Cover (%)	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large, Deep Pool (>2 ft deep,>30 ft wide)
Shotgun	Shotgun 2	1	4	327	RP	1.3	2.1	2.1	cob/grav	39	47	1	5	15	14	0.0	2	7	100
		2	2	481	RP	1.3	2.1	2.0	cob/grav	35	56	0	5	14	15	0.0	2	0	100
	Shotgun1	1	4	320	RP	0.9	1.7	2.7	bld/cob	19	46	0	5	17	17	0.0	1	27	100
		2	4	513	RP	1.3	1.7	3.1	cob/grav	44	46	0	5	36	17	0.0	2	63	100
North Salt	NorthSalt2	1	4	391	RP	0.7	2.6	5.5	bed/cob	25	45	0	38	8	8	0.5	1	26	100
		2	4	399	RP	1.2	2.6	4.6	bed/cob	38	43	1	38	5	6	0.0	1	35	100

Study Reach	Study Site	Index Section	Number of Channel Units	Index Section Length (m)	Attribute															
					Channel Morphometry				Substrate					Cover				Habitat	
					Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Bed Substrate dominant/subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Overhead Cover (% surface area)	Boulder Cover (%)	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large, Deep Pool (>2 ft deep,>30 ft wide)
	NorthSalt1	1	4	660	RP	1.8	1.6	3.0	cob/grav	36	34	0	38	15	14	0.0	2	15	100
		2	4	549	RP	0.9	1.6	3.4	cob/grav	32	50	0	38	9	15	0.5	2	34	100

Key:
% = percent
bld = boulder
CAS = cascade
cob = cobble
Fq = frequency
ft = feet
grav = gravel
m = meter
PB = plane-bed
RP = riffle pool
ST = step-pool

Table C-12. Field-derived Chinook Salmon Rearing Attribute Metric Scores for the Sacramento River

Study Reach	Study Site	Index Section	Number of Channel Units	Index Section Length (m)	Attribute														
					Channel Morphometry				Substrate					Cover				Habitat	
					Channel Type	Average Gradient	Average Entrenchment (%)	Mean Channel Depth	Bed Substrate dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Overhead Cover (% surface area)	Boulder Cover	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep,>30 ft wide)
Box Canyon	Cantara1	1	3	292	1	3	1	3	1	3	3	3	2	1	2	1	2	1	3
	Cantara2	1	4	237	1	3	1	3	1	3	3	3	3	1	2	1	2	2	3
		2	4	649	1	3	1	3	3	3	3	3	3	2	2	1	2	2	3
		3	2	105	1	3	1	3	3	3	3	3	3	1	1	1	2	2	3
Mossbrae	Mossbrae	1	4	384	2	3	1	3	3	3	3	3	3	2	3	1	2	1	3
		2	4	417	2	3	1	3	3	3	3	3	3	2	3	1	2	1	3
		3	2	249	2	3	1	3	1	3	3	3	3	2	2	1	2	1	3
Dunsmuir	Dunsmuir1	1	4	622	2	3	2	3	1	3	3	3	2	2	3	1	2	1	3
	Dunsmuir2	1	4	421	2	3	2	3	3	3	3	3	3	2	2	1	2	1	3
		2	3	389	2	3	2	3	3	3	3	3	3	2	2	1	1	2	3
Canyon	Canyon3	1	4	342	2	3	2	3	3	3	3	3	3	3	2	1	2	1	3
		2	3	458	2	2	2	3	3	3	3	3	3	2	3	1	1	1	3
	Canyon2	1	4	614	3	3	2	3	1	3	3	3	3	2	2	1	2	1	3
		2	2	332	3	3	2	3	3	3	3	3	3	2	2	1	2	1	3
	Canyon1	1	4	365	3	3	2	3	3	3	3	3	3	2	3	1	2	2	3
		2	4	261	3	3	2	3	1	3	3	3	3	1	2	1	2	3	3
		3	1	63	3	3	2	1	2	3	3	3	3	1	3	1	2	1	3

Table C-12. Field-derived Chinook Salmon Rearing Attribute Metric Scores for the Sacramento River (contd.)

Study Reach	Study Site	Index Section	Number of Channel Units	Index Section Length (m)	Attribute															
					Channel Morphometry				Substrate					Cover				Habitat	
					Channel Type	Average Gradient	Average Entrenchment (%)	Mean Channel Depth	Bed Substrate dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Overhead Cover (% surface area)	Boulder Cover	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep,>30 ft wide)
Shotgun	Shotgun 2	1	4	327	3	3	2	3	3	3	3	3	3	2	2	1	2	1	3
		2	2	481	3	3	2	3	3	3	3	3	3	2	2	1	2	1	3
	Shotgun1	1	4	320	3	3	2	3	1	3	3	3	3	2	2	1	1	2	3
		2	4	513	3	3	2	3	3	3	3	3	3	3	2	1	2	1	3
North Salt	NorthSalt2	1	4	391	3	3	3	1	1	3	3	3	2	1	2	1	1	2	3
		2	4	399	3	3	3	2	1	3	3	3	2	1	2	1	1	2	3
	NorthSalt1	1	4	660	3	3	2	3	3	3	3	3	2	2	2	1	2	1	3
		2	4	549	3	3	2	2	3	3	3	3	2	1	2	1	2	2	3

Key:
% = percent
0 = “none”
1 = “poor”
2 = “fair”
3 = “good”
Fq = frequency
ft = feet
LWD = large woody debris
m = meter

Table C-13. Mean Field-derived Chinook Salmon Rearing Attribute Scores for the Sacramento River by Index Section and Study Site

Study Reach	Study Site	Index Section	Attribute			
			Channel Morphometry	Substrate	Cover	Habitat
Box Canyon	Cantara1	1	2.0	2.4	1.5	2.0
	Cantara2	1	2.0	2.6	1.5	2.5
		2	2.0	3.0	1.8	2.5
		3	2.0	3.0	1.3	2.5
Mossbrae	Mossbrae	1	2.3	3.0	2.0	2.0
		2	2.3	3.0	2.0	2.0
		3	2.3	2.6	1.8	2.0
Dunsmuir	Dunsmuir1	1	2.5	2.4	2.0	2.0
	Dunsmuir2	1	2.5	3.0	1.8	2.0
		2	2.5	3.0	1.5	2.5
Canyon	Canyon3	1	2.5	3.0	2.0	2.0
		2	2.3	3.0	1.8	2.0
	Canyon2	1	2.8	2.6	1.8	2.0
		2	2.8	3.0	1.8	2.0
	Canyon1	1	2.8	3.0	2.0	2.5
		2	2.8	2.6	1.5	3.0
		3	2.3	2.8	1.8	2.0
Shotgun	Shotgun2	1	2.8	3.0	1.8	2.0
		2	2.8	3.0	1.8	2.0
	Shotgun1	1	2.8	2.6	1.5	2.5
		2	2.8	3.0	2.0	2.0
North Salt	NorthSalt2	1	2.5	2.4	1.3	2.5
		2	2.8	2.4	1.3	2.5
	NorthSalt1	1	2.8	2.8	1.8	2.0
		2	2.5	2.8	1.5	2.5

Key:
0 = “none”
1 = “poor”
2 = “fair”
3 = “good”

Table C-14. Field-Derived Estimates of Potential Chinook Salmon Spawning Habitat Area and Potential Spawner Capacity, as the Number of Female Chinook Salmon, in the Upper Sacramento River between Shasta Lake and Box Canyon Dam

Study Reach	River Stage	Number Delineated Spawning Habitat Features	Spawning Habitat Area m^2	Substrate Composition Coefficient	Estimated Spawner Capacity (number females)			Survey Reach Length (m)	Total Reach Length (m)	Expanded Estimate of Spawning Habitat Area m^2	Expanded Estimate of Spawner Capacity (number of females)		
					20 m^2 Spawning Territory	10 m^2 Spawning Territory	6 m^2 Spawning Territory				20 m^2 Spawning Territory	10 m^2 Spawning Territory	6 m^2 Spawning Territory
Box Canyon	baseflow	2	31.5	0.5	1	2	3	1,283	4,828	118.5	4	6	10
Box Canyon	baseflow	5	94.5	1.0	5	9	16	1,283	4,829	355.7	19	36	59
Box Canyon	OHW	2	50.5	0.5	1	3	4	1,283	4,830	190.1	4	10	16
Box Canyon	OHW	5	151.5	1.0	8	15	25	1,283	4,831	570.5	29	57	95
Mossbrae	baseflow	1	28.0	0.5	1	1	2	1,050	6,437	171.7	3	9	14
Mossbrae	OHW	1	28.0	0.5	1	1	2	1,050	6,437	171.7	3	9	14
Dunsmuir	baseflow	3	138.0	1.0	7	14	23	1,432	8,851	853.2	43	85	142
Dunsmuir	baseflow	3	149.0	0.5	4	7	12	1,432	8,851	921.2	23	46	77
Dunsmuir	OHW	3	142.0	1.0	7	14	24	1,432	8,851	877.9	44	88	146
Dunsmuir	OHW	3	154.0	0.5	4	8	13	1,432	8,851	952.1	24	48	79
Canyon	baseflow	14	342.3	1.0	17	34	57	2,434	14,484	2037.1	102	204	340
Canyon	OHW	15	453.6	1.0	23	45	76	2,434	14,484	2699.7	135	270	450
Shotgun	baseflow	1	63.6	1.0	3	6	11	1,641	13,358	517.7	26	52	86
Shotgun	baseflow	1	108.4	0.5	3	5	9	1,641	13,358	882.4	22	44	74
Shotgun	OHW	1	70.3	1.0	4	7	12	1,641	13,358	572.3	29	57	95
Shotgun	OHW	1	119.7	0.5	3	6	10	1,641	13,358	974.4	24	49	81
North Salt	baseflow	1	48.1	1.0	2	5	8	1,999	11,587	278.8	14	28	46
North Salt	baseflow	1	93.3	0.5	2	5	8	1,999	11,587	540.8	14	27	45
North Salt	OHW	1	57.8	1.0	3	6	10	1,999	11,587	335	17	34	56
North Salt	OHW	1	112.2	0.5	3	6	9	1,999	11,587	650.4	16	33	54

Key:
m = meters
m^2 = square meter
OHW = ordinary high water

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Table C-15. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Values for the McCloud River

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute											
				Channel Morphometry				Substrate					Habitat		
				Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Bed Substrate dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Ratio (proportion of pools in section)	Average Spawning Patch Size (m^2)	Average Max Pool Depth (ft)
Upper	1	4	555	ST	1.9	1.12	0.8-3.3	grav/cob	62	6	0	15	18	0	>9.8
	2	4	355	ST	1.9	1.12	0.8-3.3	grav/cob	62	6	0	15	64	0	>9.8
	3	4	622	ST	1.9	1.12	0.8-3.3	grav/cob	62	6	0	15	13	0	>9.8
	4	4	335	PB	1.9	1.12	0.8-3.3	grav/cob	62	6	0	15	32	53	>9.8
	5	4	317	PB	1.9	1.12	0.8-3.3	grav/cob	62	6	0	5	63	0	>9.8
	6	4	226	PB	1.9	1.12	0.8-3.3	grav/cob	62	6	0	5	41	0	>9.8
	7	4	276	PB	1.9	1.12	0.8-3.3	grav/cob	62	6	0	5	27	0	>9.8
	8	4	504	PB	1.9	1.12	0.8-3.3	grav/cob	62	6	0	5	8	0	>9.8
	9	4	527	PB	1.9	1.12	0.8-3.3	grav/cob	62	6	0	5	9	0	>9.8
	10	4	289	ST	1.9	1.12	0.8-3.3	grav/cob	62	6	0	5	24	0	>9.8
	11	4	306	ST	1.9	1.12	0.8-3.3	grav/cob	62	6	0	5	24	0	>9.8
	12	4	207	ST	1.9	1.12	0.8-3.3	grav/cob	62	6	0	5	85	0	>9.8
	13	4	169	ST	1.9	1.12	0.8-3.3	grav/cob	62	6	0	5	75	0	>9.8
	14	4	156	ST	1.9	1.12	0.8-3.3	grav/cob	62	6	0	5	71	0	>9.8
	15	4	294	ST	1.9	1.12	0.8-3.3	grav/cob	62	6	0	5	21	0	>9.8

Table C-15. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Values for the McCloud River (contd.)

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute											
				Channel Morphometry				Substrate					Habitat		
				Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Bed Substrate dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Ratio (proportion of pools in section)	Average Spawning Patch Size (m^2)	Average Max Pool Depth (ft)
Middle	1	4	206	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	62	39	>9.8
	2	4	289	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	79	0	>9.8
	3	4	365	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	36	0	>9.8
	4	4	899	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	19	93	>9.8
	5	4	528	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	27	60	>9.8
	6	4	459	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	76	98	>9.8
	7	4	309	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	45	0	>9.8
	8	4	163	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	69	74	>9.8
	9	4	660	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	47	121	>9.8
	10	4	512	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	67	>9.8
	11	4	27	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	0	0	0.0
	12	4	442	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	15	0	>9.8
	13	4	1,044	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	23	86	>9.8
	14	4	587	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	71	0	>9.8
	15	4	378	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	25	42	>9.8
	16	5	878	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	31	87	>9.8
	17	4	696	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	18	46	>9.8
	18	4	256	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	67	37	>9.8

Table C-15. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Values for the McCloud River (contd.)

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute											
				Channel Morphometry				Substrate					Habitat		
				Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Bed Substrate dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Ratio (proportion of pools in section)	Average Spawning Patch Size (m^2)	Average Max Pool Depth (ft)
Middle	19	4	456	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	25	0	>9.8
	20	4	515	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	25	0	>9.8
	21	4	389	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	35	149	>9.8
	22	4	400	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	74	93	>9.8
	23	4	338	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	46	55	>9.8
	24	4	378	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	63	46	>9.8
	25	4	326	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	50	101	>9.8
	26	4	401	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	47	75	>9.8
	27	4	219	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	59	0	>9.8
	28	4	427	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	26	0	>9.8
	29	4	280	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	44	93	>9.8
	30	4	254	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	60	84	>9.8
	31	4	217	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	25	0	>9.8
	32	4	408	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	44	46	>9.8
	33	4	491	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	27	46	>9.8
	34	4	523	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	14	0	>9.8
	35	4	708	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	15	130	>9.8
	36	4	507	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	11	0	>9.8

Table C-15. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Values for the McCloud River (contd.)

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute											
				Channel Morphometry				Substrate					Habitat		
				Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Bed Substrate dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Ratio (proportion of pools in section)	Average Spawning Patch Size (m^2)	Average Max Pool Depth (ft)
Middle	37	4	330	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	26	0	>9.8
	38	4	549	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	0	0	0.0
	39	4	288	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	47	37	>9.8
	40	4	246	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	38	14	0	>9.8
	41	4	634	PB	1.3	1.24	0.8-3.3	grav/cob	90	5	0	38	19	28	>9.8
Lower	1	4	595	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	49	0	>9.8
	2	4	548	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	82	297	>9.8
	3	4	405	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	70	0	>9.8
	4	4	586	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	16	84	>9.8
	5	4	542	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	44	79	>9.8
	6	4	766	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	35	0	>9.8
	7	4	555	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	67	167	>9.8
	8	4	465	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	79	0	>9.8
	9	4	552	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	35	0	>9.8
	10	4	614	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	88	0	>9.8
	11	4	703	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	63	139	>9.8
	12	4	253	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	73	42	>9.8
	13	4	669	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	58	0	>9.8

Table C-15. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Values for the McCloud River (contd.)

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute											
				Channel Morphometry				Substrate					Habitat		
				Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Bed Substrate dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Ratio (proportion of pools in section)	Average Spawning Patch Size (m^2)	Average Max Pool Depth (ft)
Lower	14	4	512	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	63	33	>9.8
	15	4	709	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	52	0	>9.8
	16	4	423	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	54	0	>9.8
	17	5	708	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	31	0	>9.8
	18	4	1,244	ST	0.8	1.57	0.8-3.3	-	-	-	-	-	76	0	>9.8
	19	4	634	ST	0.8	1.57	0.8-3.3	-	-	-	-	-	63	0	>9.8
	20	4	529	ST	0.8	1.57	0.8-3.3	-	-	-	-	-	28	0	>9.8
	21	4	602	ST	0.8	1.57	0.8-3.3	-	-	-	-	-	43	274	>9.8
	22	4	503	ST	0.8	1.57	0.8-3.3	-	-	-	-	-	55	0	>9.8
	23	4	709	ST	0.8	1.57	0.8-3.3	-	-	-	-	-	45	0	>9.8
	24	4	480	ST	0.8	1.57	0.8-3.3	-	-	-	-	-	23	0	>9.8
	25	4	754	ST	0.8	1.57	0.8-3.3	-	-	-	-	-	78	0	>9.8
	26	4	386	ST	0.8	1.57	0.8-3.3	-	-	-	-	-	43	0	>9.8
	27	4	266	ST	0.8	1.57	0.8-3.3	-	-	-	-	-	35	0	>9.8

Key:
% = percent
"-" = no data available
bld = boulder
CAS = cascade
cob = cobble
ft = feet
grav = gravel
m = meter
m^2 = square meter
PB = plane-bed
RP = riffle pool
ST = step-pool

Table C-16. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Scores for the McCloud River

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute											
				Channel Morphometry				Substrate					Habitat		
				Channel Type	Average Gradient	Average Entrenchment	Mean Channel Depth	Bed Substrate dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Ratio (proportion of pools in section)	Average Spawning Patch Size	Average Max Pool Depth Range
Upper	1	4	555	1	3	1	3	3	3	1	3	3	1	0	3
	2	4	355	1	3	1	3	3	3	1	3	3	1	0	3
	3	4	622	1	3	1	3	3	3	1	3	3	1	0	3
	4	4	335	2	3	1	3	3	3	1	3	3	2	3	3
	5	4	317	2	3	1	3	3	3	1	3	3	1	0	3
	6	4	226	2	3	1	3	3	3	1	3	3	3	0	3
	7	4	276	2	3	1	3	3	3	1	3	3	2	0	3
	8	4	504	2	3	1	3	3	3	1	3	3	1	0	3
	9	4	527	2	3	1	3	3	3	1	3	3	1	0	3
	10	4	289	1	3	1	3	3	3	1	3	3	2	0	3
	11	4	306	1	3	1	3	3	3	1	3	3	2	0	3
	12	4	207	1	3	1	3	3	3	1	3	3	1	0	3
	13	4	169	1	3	1	3	3	3	1	3	3	1	0	3
	14	4	156	1	3	1	3	3	3	1	3	3	1	0	3
	15	4	294	1	3	1	3	3	3	1	3	3	2	0	3

Table C-16. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Scores for the McCloud River (contd.)

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute											
				Channel Morphometry				Substrate					Habitat		
				Channel Type	Average Gradient	Average Entrenchment	Mean Channel Depth	Bed Substrate dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Ratio (proportion of pools in section)	Average Spawning Patch Size	Average Max Pool Depth Range
Middle	1	4	206	2	3	1	3	3	3	1	3	2	1	3	3
	2	4	289	2	3	1	3	3	3	1	3	2	1	0	3
	3	4	365	2	3	1	3	3	3	1	3	2	2	0	3
	4	4	899	2	3	1	3	3	3	1	3	2	1	3	3
	5	4	528	2	3	1	3	3	3	1	3	2	2	3	3
	6	4	459	2	3	1	3	3	3	1	3	2	1	3	3
	7	4	309	2	3	1	3	3	3	1	3	2	3	0	3
	8	4	163	2	3	1	3	3	3	1	3	2	1	3	3
	9	4	660	2	3	1	3	3	3	1	3	2	3	3	3
	10	4	512	2	3	1	3	3	3	1	3	2	1	3	3
	11	4	27	2	3	1	3	3	3	1	3	2	1	0	0
	12	4	442	2	3	1	3	3	3	1	3	2	1	0	3
	13	4	1,044	2	3	1	3	3	3	1	3	2	2	3	3
	14	4	587	2	3	1	3	3	3	1	3	2	1	0	3
	15	4	378	2	3	1	3	3	3	1	3	2	2	3	3
	16	5	878	2	3	1	3	3	3	1	3	2	2	3	3
	17	4	696	2	3	1	3	3	3	1	3	2	1	3	3
	18	4	256	2	3	1	3	3	3	1	3	2	1	3	3

Table C-16. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Scores for the McCloud River (contd.)

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute											
				Channel Morphometry				Substrate					Habitat		
				Channel Type	Average Gradient	Average Entrenchment	Mean Channel Depth	Bed Substrate dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Ratio (proportion of pools in section)	Average Spawning Patch Size	Average Max Pool Depth Range
Middle	19	4	456	2	3	1	3	3	3	1	3	2	2	0	3
	20	4	515	2	3	1	3	3	3	1	3	2	2	0	3
	21	4	389	2	3	1	3	3	3	1	3	2	2	3	3
	22	4	400	2	3	1	3	3	3	1	3	2	1	3	3
	23	4	338	2	3	1	3	3	3	1	3	2	3	3	3
	24	4	378	2	3	1	3	3	3	1	3	2	1	3	3
	25	4	326	2	3	1	3	3	3	1	3	2	3	3	3
	26	4	401	2	3	1	3	3	3	1	3	2	3	3	3
	27	4	219	2	3	1	3	3	3	1	3	2	3	0	3
	28	4	427	2	3	1	3	3	3	1	3	2	2	0	3
	29	4	280	2	3	1	3	3	3	1	3	2	3	3	3
	30	4	254	2	3	1	3	3	3	1	3	2	1	3	3
	31	4	217	2	3	1	3	3	3	1	3	2	2	0	3
	32	4	408	2	3	1	3	3	3	1	3	2	3	3	3
	33	4	491	2	3	1	3	3	3	1	3	2	2	3	3
	34	4	523	2	3	1	3	3	3	1	3	2	1	0	3
	35	4	708	2	3	1	3	3	3	1	3	2	1	3	3
	36	4	507	2	3	1	3	3	3	1	3	2	1	0	3

Table C-16. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Scores for the McCloud River (contd.)

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute												
				Channel Morphometry				Substrate					Habitat		
				Channel Type	Average Gradient	Average Entrenchment	Mean Channel Depth	Bed Substrate dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Ratio (proportion of pools in section)	Average Spawning Patch Size	Average Max Pool Depth Range
Middle	37	4	330	2	3	1	3	3	3	1	3	2	2	0	3
	38	4	549	2	3	1	3	3	3	1	3	2	1	0	0
	39	4	288	2	3	1	3	3	3	1	3	2	3	3	3
	40	4	246	2	3	1	3	3	3	1	3	2	1	0	3
	41	4	634	2	3	1	3	3	3	1	3	2	1	3	3
Lower	1	4	595	3	3	2	3						3	0	3
	2	4	548	3	3	2	3						1	3	3
	3	4	405	3	3	2	3	-	-	-	-	-	1	0	3
	4	4	586	3	3	2	3	-	-	-	-	-	1	3	3
	5	4	542	3	3	2	3	-	-	-	-	-	3	3	3
	6	4	766	3	3	2	3	-	-	-	-	-	2	0	3
	7	4	555	3	3	2	3	-	-	-	-	-	1	3	3
	8	4	465	3	3	2	3	-	-	-	-	-	1	0	3
	9	4	552	3	3	2	3	-	-	-	-	-	2	0	3
	10	4	614	3	3	2	3	-	-	-	-	-	1	0	3
	11	4	703	3	3	2	3	-	-	-	-	-	1	3	3
	12	4	253	3	3	2	3	-	-	-	-	-	1	3	3
	13	4	669	3	3	2	3	-	-	-	-	-	3	0	3

Table C-16. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Scores for the McCloud River (contd.)

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute											
				Channel Morphometry				Substrate					Habitat		
				Channel Type	Average Gradient	Average Entrenchment	Mean Channel Depth	Bed Substrate dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Ratio (proportion of pools in section)	Average Spawning Patch Size	Average Max Pool Depth Range
Lower	14	4	512	3	3	2	3	-	-	-	-	-	1	3	3
	15	4	709	3	3	2	3	-	-	-	-	-	3	0	3
	16	4	423	3	3	2	3	-	-	-	-	-	3	0	3
	17	5	708	3	3	2	3	-	-	-	-	-	2	0	3
	18	4	1,244	1	3	2	3	-	-	-	-	-	1	0	3
	19	4	634	1	3	2	3	-	-	-	-	-	1	0	3
	20	4	529	1	3	2	3	-	-	-	-	-	2	0	3
	21	4	602	1	3	2	3	-	-	-	-	-	3	3	3
	22	4	503	1	3	2	3	-	-	-	-	-	3	0	3
	23	4	709	1	3	2	3	-	-	-	-	-	3	0	3
	24	4	480	1	3	2	3	-	-	-	-	-	2	0	3
	25	4	754	1	3	2	3	-	-	-	-	-	1	0	3
	26	4	386	1	3	2	3	-	-	-	-	-	3	0	3
	27	4	266	1	3	2	3	-	-	-	-	-	2	0	3

Key:
% = percent
"-" = no data available

0 = "none"
1 = "poor"
2 = "fair"
3 = "good"

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Table C-17. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Mean Attribute Scores for the McCloud River by Index Section (mean of attribute scores)

Study Reach	Index Section	Attribute		
		Channel Morphometry	Substrate	Habitat
Upper	1	2.0	2.6	1.3
Upper	2	2.0	2.6	1.3
Upper	3	2.0	2.6	1.3
Upper	4	2.3	2.6	2.7
Upper	5	2.3	2.6	1.3
Upper	6	2.3	2.6	2.0
Upper	7	2.3	2.6	1.7
Upper	8	2.3	2.6	1.3
Upper	9	2.3	2.6	1.3
Upper	10	2.0	2.6	1.7
Upper	11	2.0	2.6	1.7
Upper	12	2.0	2.6	1.3
Upper	13	2.0	2.6	1.3
Upper	14	2.0	2.6	1.3
Upper	15	2.0	2.6	1.7
Middle	1	2.3	2.4	2.3
Middle	2	2.3	2.4	1.3
Middle	3	2.3	2.4	1.7
Middle	4	2.3	2.4	2.3
Middle	5	2.3	2.4	2.7
Middle	6	2.3	2.4	2.3
Middle	7	2.3	2.4	2.0
Middle	8	2.3	2.4	2.3
Middle	9	2.3	2.4	3.0
Middle	10	2.3	2.4	2.3
Middle	11	2.3	2.4	0.3
Middle	12	2.3	2.4	1.3
Middle	13	2.3	2.4	2.7
Middle	14	2.3	2.4	1.3
Middle	15	2.3	2.4	2.7
Middle	16	2.3	2.4	2.7
Middle	17	2.3	2.4	2.3

Study Reach	Index Section	Attribute		
		Channel Morphometry	Substrate	Habitat
Middle	18	2.3	2.4	2.3

Table C-17. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Mean Attribute Scores for the McCloud River by Index Section (mean of attribute scores) (contd.)

Study Reach	Index Section	Attribute		
		Channel Morphometry	Substrate	Habitat
Middle	19	2.3	2.4	1.7
Middle	20	2.3	2.4	1.7
Middle	21	2.3	2.4	2.7
Middle	22	2.3	2.4	2.3
Middle	23	2.3	2.4	3.0
Middle	24	2.3	2.4	2.3
Middle	25	2.3	2.4	3.0
Middle	26	2.3	2.4	3.0
Middle	27	2.3	2.4	2.0
Middle	28	2.3	2.4	1.7
Middle	29	2.3	2.4	3.0
Middle	30	2.3	2.4	2.3
Middle	31	2.3	2.4	1.7
Middle	32	2.3	2.4	3.0
Middle	33	2.3	2.4	2.7
Middle	34	2.3	2.4	1.3
Middle	35	2.3	2.4	2.3
Middle	36	2.3	2.4	1.3
Middle	37	2.3	2.4	1.7
Middle	38	2.3	2.4	0.3
Middle	39	2.3	2.4	3.0
Middle	40	2.3	2.4	1.3
Middle	41	2.3	2.4	2.3
Lower	1	2.8	-	2.0
Lower	2	2.8	-	2.3
Lower	3	2.8	-	1.3
Lower	4	2.8	-	2.3
Lower	5	2.8	-	3.0

Study Reach	Index Section	Attribute		
		Channel Morphometry	Substrate	Habitat
Lower	6	2.8	-	1.7
Lower	7	2.8	-	2.3
Lower	8	2.8	-	1.3
Lower	9	2.8	-	1.7
Lower	10	2.8	-	1.3
Lower	11	2.8	-	2.3
Lower	12	2.8	-	2.3

Table C-17. Video-Derived Chinook Salmon Spawning, Egg Incubation and Emergence Mean Attribute Scores for the McCloud River by Index Section (mean of attribute scores) (contd.)

Study Reach	Index Section	Attribute		
		Channel Morphometry	Substrate	Habitat
Lower	13	2.8	-	2.0
Lower	14	2.8	-	2.3
Lower	15	2.8	-	2.0
Lower	16	2.8	-	2.0
Lower	17	2.8	-	1.7
Lower	18	2.3	-	1.3
Lower	19	2.3	-	1.3
Lower	20	2.3	-	1.7
Lower	21	2.3	-	3.0
Lower	22	2.3	-	2.0
Lower	23	2.3	-	2.0
Lower	24	2.3	-	1.7
Lower	25	2.3	-	1.3
Lower	26	2.3	-	2.0
Lower	27	2.3	-	1.7

Key:
% = percent
"-" = no data available
1 = "poor"
2 = "fair"
3 = "good"

Table C-18. Video-Derived Chinook Salmon Rearing Attribute Metric Values for the McCloud River

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute														
				Channel Morphometry				Substrate					Cover				Habitat	
				Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Bed Substrate dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Overhead Cover (% surface area)	Boulder Cover (%)	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep,>30 ft wide)
Upper	1	4	555	ST	1.9	1.12	0.8-3.3	grav/cob	62	6	0	15	13	18	0.5	2	18	100
	2	4	355	ST	1.9	1.12	0.8-3.3	grav/cob	62	6	0	15	13	18	1.4	2	64	100
	3	4	622	ST	1.9	1.12	0.8-3.3	grav/cob	62	6	0	15	13	18	0.2	2	13	100
	4	4	335	PB	1.9	1.12	0.8-3.3	grav/cob	62	6	0	15	13	18	0.9	2	32	100
	5	4	317	PB	1.9	1.12	0.8-3.3	grav/cob	62	6	0	5	15	21	0.6	2	63	100
	6	4	226	PB	1.9	1.12	0.8-3.3	grav/cob	62	6	0	5	16	21	1.8	2	41	100
	7	4	276	PB	1.9	1.12	0.8-3.3	grav/cob	62	6	0	5	16	21	0.0	2	27	100
	8	4	504	PB	1.9	1.12	0.8-3.3	grav/cob	62	6	0	5	16	21	1.0	2	8	100
	9	4	527	PB	1.9	1.12	0.8-3.3	grav/cob	62	6	0	5	16	21	0.2	2	9	100
	10	4	289	ST	1.9	1.12	0.8-3.3	grav/cob	62	6	0	5	16	21	0.3	2	44	100
	11	4	306	ST	1.9	1.12	0.8-3.3	grav/cob	62	6	0	5	16	21	0.0	2	24	100
	12	4	207	ST	1.9	1.12	3.3-6.6	grav/cob	62	6	0	5	16	21	0.0	2	85	100
	13	4	169	ST	1.9	1.12	0.8-3.3	grav/cob	62	6	0	5	16	21	0.0	2	75	100
	14	4	156	ST	1.9	1.12	3.3-6.8	grav/cob	62	6	0	5	16	21	0.6	2	71	100
	15	4	294	ST	1.9	1.12	0.8-3.3	grav/cob	62	6	0	5	16	21	0.0	2	21	100

Table C-18. Video-Derived Chinook Salmon Rearing Attribute Metric Values for the McCloud River (contd.)

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute														
				Channel Morphometry				Substrate					Cover				Habitat	
				Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Bed Substrate dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Overhead Cover (% surface area)	Boulder Cover (%)	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep,>30 ft wide)
Middle	1	4	206	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	1.0	2	62	100
	2	4	289	PB	1.1	1.28	3.3-6.6	grav/cob	90	5	0	27	20	14	1.7	2	79	100
	3	4	365	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	2.5	2	36	100
	4	4	899	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	1.1	2	19	100
	5	4	528	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	0.2	2	27	100
	6	4	459	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	0.0	2	76	100
	7	4	309	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	1.9	2	61	100
	8	4	163	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	1.8	2	69	100
	9	4	660	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	0.5	2	47	100
	10	4	512	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	0.0	2	20	100
	11	4	27	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	0.0	2	0	0
	12	4	442	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	0.0	2	15	100
	13	4	1,044	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	1.0	2	23	100
	14	4	587	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	1.5	2	71	100
	15	4	378	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	1.6	2	25	100
	16	5	878	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	2.3	2	31	100
	17	4	696	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	0.3	2	18	100

Table C-18. Video-Derived Chinook Salmon Rearing Attribute Metric Values for the McCloud River (contd.)

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute														
				Channel Morphometry				Substrate					Cover				Habitat	
				Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Bed Substrate dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Overhead Cover (% surface area)	Boulder Cover (%)	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep,>30 ft wide)
Middle	18	4	256	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	1.6	2	67	100
	19	4	456	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	0.0	2	25	100
	20	4	515	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	1.0	2	25	100
	21	4	389	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	1.0	2	35	100
	22	4	400	PB	1.1	1.28	3.3-6.6	grav/cob	90	5	0	27	20	14	0.8	2	74	100
	23	4	338	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	0.9	2	46	100
	24	4	378	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	0.3	2	63	100
	25	4	326	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	1.5	2	50	100
	26	4	401	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	0.2	2	47	100
	27	4	219	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	0.0	2	59	100
	28	4	427	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	0.2	2	26	100
	29	4	280	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	0.4	2	44	100
	30	4	254	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	1.2	2	60	100
	31	4	217	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	0.0	2	25	100
	32	4	408	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	2.7	2	44	100
	33	4	491	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	0.4	2	27	100
	34	4	523	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	1.0	2	14	100

Table C-18. Video-Derived Chinook Salmon Rearing Attribute Metric Values for the McCloud River (contd.)

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute														
				Channel Morphometry				Substrate					Cover				Habitat	
				Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Bed Substrate dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Overhead Cover (% surface area)	Boulder Cover (%)	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep,>30 ft wide)
Middle	35	4	708	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	0.1	2	15	100
	36	4	507	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	0.6	2	11	100
	37	4	330	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	0.0	2	26	100
	38	4	549	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	0.2	2	14	100
	39	4	288	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	27	20	14	1.0	2	47	100
	40	4	246	PB	1.1	1.28	0.8-3.3	grav/cob	90	5	0	38	13	18	1.6	2	14	100
	41	4	634	PB	1.3	1.24	0.8-3.3	grav/cob	90	5	0	38	13	18	0.8	2	19	100
Lower	1	4	595	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	-	-	0.0	-	49	100
	2	4	548	RP	0.8	1.57	3.3-6.6	-	-	-	-	-	-	-	0.0	-	82	100
	3	4	405	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	-	-	0.0	-	70	100
	4	4	586	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	-	-	0.0	-	16	100
	5	4	542	RP	0.8	1.57	3.3-6.6	-	-	-	-	-	-	-	0.2	-	44	100
	6	4	766	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	-	-	0.1	-	52	100
	7	4	555	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	-	-	0.2	-	67	100
	8	4	465	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	-	-	0.0	-	79	100
	9	4	552	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	-	-	0.2	-	61	100
	10	4	614	RP	0.8	1.57	3.3-6.6	-	-	-	-	-	-	-	0.2	-	88	100

Table C-18. Video-Derived Chinook Salmon Rearing Attribute Metric Values for the McCloud River (contd.)

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute														
				Channel Morphometry				Substrate					Cover				Habitat	
				Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Bed Substrate dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Overhead Cover (% surface area)	Boulder Cover (%)	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep,>30 ft wide)
Lower	11	4	703	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	-	-	0.0	-	63	100
	12	4	253	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	-	-	0.0	-	73	100
	13	4	669	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	-	-	0.1	-	58	100
	14	4	512	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	-	-	0.2	-	63	100
	15	4	709	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	-	-	0.1	-	52	100
	16	4	423	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	-	-	0.5	-	54	100
	17	5	708	RP	0.8	1.57	0.8-3.3	-	-	-	-	-	-	-	0.4	-	31	100
	18	4	1,244	ST	0.8	1.57	3.3-6.6	-	-	-	-	-	-	-	0.0	-	76	100
	19	4	634	ST	0.8	1.57	0.8-3.3	-	-	-	-	-	-	-	0.0	-	63	100
	20	4	529	ST	0.8	1.57	0.8-3.3	-	-	-	-	-	-	-	0.2	-	28	100
	21	4	602	ST	0.8	1.57	0.8-3.3	-	-	-	-	-	-	-	0.5	-	43	100
	22	4	503	ST	0.8	1.57	3.3-6.6	-	-	-	-	-	-	-	0.4	-	55	100
	23	4	709	ST	0.8	1.57	0.8-3.3	-	-	-	-	-	-	-	0.3	-	45	100
	24	4	480	ST	0.8	1.57	0.8-3.3	-	-	-	-	-	-	-	0.0	-	23	100
	25	4	754	ST	0.8	1.57	3.3-6.6	-	-	-	-	-	-	-	0.4	-	78	100
	26	4	386	ST	0.8	1.57	0.8-3.3	-	-	-	-	-	-	-	0.8	-	43	100
	27	4	266	ST	0.8	1.57	0.8-3.3	-	-	-	-	-	-	-	0.8	-	35	100

Key:
% = percent
"-" = no data available

bld = boulder
CAS = cascade
cob = cobble

Fq = frequency
ft = feet
grav = gravel

LWD = large woody debris
m = meter
PB = plane-bed

RP = riffle pool
ST = step-pool

Table C-19. Video-Derived Chinook Salmon Rearing Attribute Metric Scores for the McCloud River

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute														
				Channel Morphometry				Substrate					Cover				Habitat	
				Channel Type	Average Gradient	Average Entrenchment	Mean Channel Depth Range	Bed Substrate dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Overhead Cover (% surface area)	Boulder Cover	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep,>30 ft wide)
Upper	1	4	555	1	3	1	3	2	3	1	3	3	2	2	1	2	1	3
	2	4	355	1	3	1	3	2	3	1	3	3	2	2	1	2	1	3
	3	4	622	1	3	1	3	2	3	1	3	3	2	2	1	2	1	3
	4	4	335	2	3	1	3	2	3	1	3	3	2	2	1	2	2	3
	5	4	317	2	3	1	3	2	3	1	3	3	2	3	1	2	1	3
	6	4	226	2	3	1	3	2	3	1	3	3	2	3	1	2	3	3
	7	4	276	2	3	1	3	2	3	1	3	3	2	3	1	2	2	3
	8	4	504	2	3	1	3	2	3	1	3	3	2	3	1	2	1	3
	9	4	527	2	3	1	3	2	3	1	3	3	2	3	1	2	1	3
	10	4	289	1	3	1	3	2	3	1	3	3	2	3	1	2	3	3
	11	4	306	1	3	1	3	2	3	1	3	3	2	3	1	2	2	3
	12	4	207	1	3	1	2	2	3	1	3	3	2	3	1	2	1	3
	13	4	169	1	3	1	3	2	3	1	3	3	2	3	1	2	1	3
	14	4	156	1	3	1	1	2	3	1	3	3	2	3	1	2	1	3
	15	4	294	1	3	1	3	2	3	1	3	3	2	3	1	2	2	3

Table C-19. Video-Derived Chinook Salmon Rearing Attribute Metric Scores for the McCloud River (contd.)

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute														
				Channel Morphometry				Substrate					Cover				Habitat	
				Channel Type	Average Gradient	Average Entrenchment	Mean Channel Depth Range	Bed Substrate dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Overhead Cover (% surface area)	Boulder Cover	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep,>30 ft wide)
Middle	1	4	206	2	3	1	3	2	3	1	3	2	2	2	1	2	1	3
	2	4	289	2	3	1	2	2	3	1	3	2	2	2	1	2	1	3
	3	4	365	2	3	1	3	2	3	1	3	2	2	2	1	2	2	3
	4	4	899	2	3	1	3	2	3	1	3	2	2	2	1	2	1	3
	5	4	528	2	3	1	3	2	3	1	3	2	2	2	1	2	2	3
	6	4	459	2	3	1	3	2	3	1	3	2	2	2	1	2	1	3
	7	4	309	2	3	1	3	2	3	1	3	2	2	2	1	2	1	3
	8	4	163	2	3	1	3	2	3	1	3	2	2	2	1	2	1	3
	9	4	660	2	3	1	3	2	3	1	3	2	2	2	1	2	3	3
	10	4	512	2	3	1	3	2	3	1	3	2	2	2	1	2	1	3
	11	4	27	2	3	1	3	2	3	1	3	2	2	2	1	2	1	0
	12	4	442	2	3	1	3	2	3	1	3	2	2	2	1	2	1	3
	13	4	1,044	2	3	1	3	2	3	1	3	2	2	2	1	2	2	3
	14	4	587	2	3	1	3	2	3	1	3	2	2	2	1	2	1	3
	15	4	378	2	3	1	3	2	3	1	3	2	2	2	1	2	2	3
	16	5	878	2	3	1	3	2	3	1	3	2	2	2	1	2	2	3
	17	4	696	2	3	1	3	2	3	1	3	2	2	2	1	2	1	3

Table C-19. Video-Derived Chinook Salmon Rearing Attribute Metric Scores for the McCloud River (contd.)

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute															
				Channel Morphometry				Substrate					Cover				Habitat	
				Channel Type	Average Gradient	Average Entrenchment	Mean Channel Depth Range	Bed Substrate dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Overhead Cover (% surface area)	Boulder Cover	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep,>30 ft wide)
Middle	18	4	256	2	3	1	3	2	3	1	3	2	2	2	1	2	1	3
	19	4	456	2	3	1	3	2	3	1	3	2	2	2	1	2	2	3
	20	4	515	2	3	1	3	2	3	1	3	2	2	2	1	2	2	3
	21	4	389	2	3	1	3	2	3	1	3	2	2	2	1	2	2	3
	22	4	400	2	3	1	2	2	3	1	3	2	2	2	1	2	1	3
	23	4	338	2	3	1	3	2	3	1	3	2	2	2	1	2	3	3
	24	4	378	2	3	1	3	2	3	1	3	2	2	2	1	2	1	3
	25	4	326	2	3	1	3	2	3	1	3	2	2	2	1	2	3	3
	26	4	401	2	3	1	3	2	3	1	3	2	2	2	1	2	3	3
	27	4	219	2	3	1	3	2	3	1	3	2	2	2	1	2	3	3
	28	4	427	2	3	1	3	2	3	1	3	2	2	2	1	2	2	3
	29	4	280	2	3	1	3	2	3	1	3	2	2	2	1	2	3	3
	30	4	254	2	3	1	3	2	3	1	3	2	2	2	1	2	1	3
	31	4	217	2	3	1	3	2	3	1	3	2	2	2	1	2	2	3
	32	4	408	2	3	1	3	2	3	1	3	2	2	2	1	2	3	3
	33	4	491	2	3	1	3	2	3	1	3	2	2	2	1	2	2	3
	34	4	523	2	3	1	3	2	3	1	3	2	2	2	1	2	1	3

Table C-19. Video-Derived Chinook Salmon Rearing Attribute Metric Scores for the McCloud River (contd.)

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute															
				Channel Morphometry				Substrate					Cover				Habitat	
				Channel Type	Average Gradient	Average Entrenchment	Mean Channel Depth Range	Bed Substrate dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Overhead Cover (% surface area)	Boulder Cover	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep,>30 ft wide)
Middle	35	4	708	2	3	1	3	2	3	1	3	2	2	2	1	2	1	3
	36	4	507	2	3	1	3	2	3	1	3	2	2	2	1	2	1	3
	37	4	330	2	3	1	3	2	3	1	3	2	2	2	1	2	2	3
	38	4	549	2	3	1	3	2	3	1	3	2	2	2	1	2	1	3
	39	4	288	2	3	1	3	2	3	1	3	2	2	2	1	2	3	3
	40	4	246	2	3	1	3	2	3	1	3	2	2	2	1	2	1	3
	41	4	634	2	3	1	3	2	3	1	3	2	2	2	1	2	1	3
Lower	1	4	595	3	3	2	3	-	-	-	-	-	-	-	1	1	3	3
	2	4	548	3	3	2	2	-	-	-	-	-	-	-	1	1	1	3
	3	4	405	3	3	2	3	-	-	-	-	-	-	-	1	1	1	3
	4	4	586	3	3	2	3	-	-	-	-	-	-	-	1	1	1	3
	5	4	542	3	3	2	2	-	-	-	-	-	-	-	1	1	3	3
	6	4	766	3	3	2	3	-	-	-	-	-	-	-	1	1	3	3
	7	4	555	3	3	2	3	-	-	-	-	-	-	-	1	1	1	3
	8	4	465	3	3	2	3	-	-	-	-	-	-	-	1	1	1	3
	9	4	552	3	3	2	3	-	-	-	-	-	-	-	1	1	1	3
	10	4	614	3	3	2	2	-	-	-	-	-	-	-	1	1	1	3

Table C-19. Video-Derived Chinook Salmon Rearing Attribute Metric Scores for the McCloud River (contd.)

Study Reach	Index Section	Number of Channel Units	Index Section Length (m)	Attribute															
				Channel Morphometry				Substrate					Cover				Habitat	
				Channel Type	Average Gradient	Average Entrenchment	Mean Channel Depth Range	Bed Substrate dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Overhead Cover (% surface area)	Boulder Cover	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep,>30 ft wide)
Lower	11	4	703	3	3	2	3	-	-	-	-	-	-	-	1	1	1	3
	12	4	253	3	3	2	3	-	-	-	-	-	-	-	1	1	1	3
	13	4	669	3	3	2	3	-	-	-	-	-	-	-	1	1	3	3
	14	4	512	3	3	2	3	-	-	-	-	-	-	-	1	1	1	3
	15	4	709	3	3	2	3	-	-	-	-	-	-	-	1	1	3	3
	16	4	423	3	3	2	3	-	-	-	-	-	-	-	1	1	3	3
	17	5	708	3	3	2	3	-	-	-	-	-	-	-	1	1	2	3
	18	4	1,244	1	3	2	2	-	-	-	-	-	-	-	1	1	1	3
	19	4	634	1	3	2	3	-	-	-	-	-	-	-	1	1	1	3
	20	4	529	1	3	2	3	-	-	-	-	-	-	-	1	1	2	3
	21	4	602	1	3	2	3	-	-	-	-	-	-	-	1	1	3	3
	22	4	503	1	3	2	2	-	-	-	-	-	-	-	1	1	3	3
	23	4	709	1	3	2	3	-	-	-	-	-	-	-	1	1	3	3
	24	4	480	1	3	2	3	-	-	-	-	-	-	-	1	1	2	3
	25	4	754	1	3	2	2	-	-	-	-	-	-	-	1	1	1	3
	26	4	386	1	3	2	3	-	-	-	-	-	-	-	1	1	3	3
	27	4	266	1	3	2	3	-	-	-	-	-	-	-	1	1	2	3

Key: 0 = “none”; 1 = “poor”; 2 = “fair”; 3 = “good”; m = meter; ft = feet; % = percent; Fq = frequency; LWD = large woody debris; “-“ = no data available.

Table C-20. Video-Derived Chinook Salmon Rearing Mean Attribute Scores for the McCloud by Index Section (mean of attribute scores)

Study Reach	Index Section	Attribute			
		Channel Morphometry	Substrate	Cover	Habitat
Upper	1	2.0	2.4	1.8	2.0
Upper	2	2.0	2.4	1.8	2.0
Upper	3	2.0	2.4	1.8	2.0
Upper	4	2.3	2.4	1.8	2.5
Upper	5	2.3	2.4	2.0	2.0
Upper	6	2.3	2.4	2.0	3.0
Upper	7	2.3	2.4	2.0	2.5
Upper	8	2.3	2.4	2.0	2.0
Upper	9	2.3	2.4	2.0	2.0
Upper	10	2.0	2.4	2.0	3.0
Upper	11	2.0	2.4	2.0	2.5
Upper	12	1.8	2.4	2.0	2.0
Upper	13	2.0	2.4	2.0	2.0
Upper	14	1.5	2.4	2.0	2.0
Upper	15	2.0	2.4	2.0	2.5
Middle	1	2.3	2.2	1.8	2.0
Middle	2	2.0	2.2	1.8	2.0
Middle	3	2.3	2.2	1.8	2.5
Middle	4	2.3	2.2	1.8	2.0
Middle	5	2.3	2.2	1.8	2.5
Middle	6	2.3	2.2	1.8	2.0
Middle	7	2.3	2.2	1.8	2.0
Middle	8	2.3	2.2	1.8	2.0
Middle	9	2.3	2.2	1.8	3.0
Middle	10	2.3	2.2	1.8	2.0
Middle	11	2.3	2.2	1.8	0.5
Middle	12	2.3	2.2	1.8	2.0
Middle	13	2.3	2.2	1.8	2.5
Middle	14	2.3	2.2	1.8	2.0
Middle	15	2.3	2.2	1.8	2.5

Table C-20. Video-Derived Chinook Salmon Rearing Mean Attribute Scores for the McCloud by Index Section (mean of attribute scores) (contd.)

Study Reach	Index Section	Attribute			
		Channel Morphometry	Substrate	Cover	Habitat
Middle	16	2.3	2.2	1.8	2.5
Middle	17	2.3	2.2	1.8	2.0
Middle	18	2.3	2.2	1.8	2.0
Middle	19	2.3	2.2	1.8	2.5
Middle	20	2.3	2.2	1.8	2.5
Middle	21	2.3	2.2	1.8	2.5
Middle	22	2.0	2.2	1.8	2.0
Middle	23	2.3	2.2	1.8	3.0
Middle	24	2.3	2.2	1.8	2.0
Middle	25	2.3	2.2	1.8	3.0
Middle	26	2.3	2.2	1.8	3.0
Middle	27	2.3	2.2	1.8	3.0
Middle	28	2.3	2.2	1.8	2.5
Middle	29	2.3	2.2	1.8	3.0
Middle	30	2.3	2.2	1.8	2.0
Middle	31	2.3	2.2	1.8	2.5
Middle	32	2.3	2.2	1.8	3.0
Middle	33	2.3	2.2	1.8	2.5
Middle	34	2.3	2.2	1.8	2.0
Middle	35	2.3	2.2	1.8	2.0
Middle	36	2.3	2.2	1.8	2.0
Middle	37	2.3	2.2	1.8	2.5
Middle	38	2.3	2.2	1.8	2.0
Middle	39	2.3	2.2	1.8	3.0
Middle	40	2.3	2.2	1.8	2.0
Middle	41	2.3	2.2	1.8	2.0
Lower	1	2.8	-	1.0	3.0
Lower	2	2.5	-	1.0	2.0
Lower	3	2.8	-	1.0	2.0
Lower	4	2.8	-	1.0	2.0
Lower	5	2.5	-	1.0	3.0
Lower	6	2.8	-	1.0	3.0

Table C-20. Mean Video-Derived Chinook Salmon Rearing Mean Attribute Scores for the McCloud by Index Section (mean of attribute scores) (contd.)

Study Reach	Index Section	Attribute			
		Channel Morphometry	Substrate	Cover	Habitat
Lower	7	2.8	-	1.0	2.0
Lower	8	2.8	-	1.0	2.0
Lower	9	2.8	-	1.0	2.0
Lower	10	2.5	-	1.0	2.0
Lower	11	2.8	-	1.0	2.0
Lower	12	2.8	-	1.0	2.0
Lower	13	2.8	-	1.0	3.0
Lower	14	2.8	-	1.0	2.0
Lower	15	2.8	-	1.0	3.0
Lower	16	2.8	-	1.0	3.0
Lower	17	2.8	-	1.0	2.5
Lower	18	2.0	-	1.0	2.0
Lower	19	2.3	-	1.0	2.0
Lower	20	2.3	-	1.0	2.5
Lower	21	2.3	-	1.0	3.0
Lower	22	2.0	-	1.0	3.0
Lower	23	2.3	-	1.0	3.0
Lower	24	2.3	-	1.0	2.5
Lower	25	2.0	-	1.0	2.0
Lower	26	2.3	-	1.0	3.0
Lower	27	2.3	-	1.0	2.5

Key:
"-" = no data available
1 = "poor"
2 = "fair"
3 = "good"

Table C-21. Aerial Video-Derived Estimates of Potential Chinook Salmon Spawning Habitat Area and Potential Spawner Capacity, as the Number of Female Salmon, in the McCloud River between Shasta Lake and McCloud Dam

Study Reach	Habitat Unit	Number Delineated Spawning Habitat Features	Spawning Habitat Area m^2	Dominant/ Subdominant Bed Composition Correction	Estimated Spawner Capacity (number females)		
					20 m^2 Spawning Territory	10 m^2 Spawning Territory	6 m^2 Spawning Territory
Baseflow Stage							
Lower	7	1	250.8	0.5	6	13	21
Lower	14	1	83.6	0.5	2	4	7
Lower	15	1	65.0	0.1	0	0	1
Lower	23	1	111.5	0.1	0	1	2
Lower	38	1	102.2	0.5	3	5	9
Lower	42	1	27.9	0.5	1	1	2
Lower	50	1	26.0	1.0	1	3	4
Lower	84	1	30.2	0.5	1	2	3
Lower	85	1	511.0	0.1	3	5	9
Middle	111	1	33.4	0.5	1	2	3
Middle	119	1	46.5	0.5	1	2	4
Middle	120	1	81.8	0.1	0	0	1
Middle	123	1	27.9	0.1	0	0	0
Middle	124	1	65.0	0.1	0	0	1
Middle	126	1	130.1	0.1	0	1	2
Middle	128	1	27.9	0.5	1	1	2
Middle	135	1	55.7	1.0	3	6	9
Middle	137	1	46.5	0.5	1	2	4
Middle	139	1	120.8	1.0	6	12	20

Table C-21. Aerial Video-Derived Estimates of Potential Chinook Salmon Spawning Habitat Area and Potential Spawner Capacity, as the Number of Female Salmon, in the McCloud River between Shasta Lake and McCloud Dam (contd.)

Study Reach	Habitat Unit	Number Delineated Spawning Habitat Features	Spawning Habitat Area m^2	Dominant/ Subdominant Bed Composition Correction	Estimated Spawner Capacity (number females)		
					20 m^2 Spawning Territory	10 m^2 Spawning Territory	6 m^2 Spawning Territory
Middle	147	1	51.1	0.5	1	3	4
Middle	155	1	62.7	0.1	0	0	1
Middle	163	1	34.8	1.0	2	3	6
Middle	166	1	51.1	1.0	3	5	9
Middle	169	1	111.5	1.0	6	11	19
Middle	172	1	46.5	1.0	2	5	8
Middle	174	1	32.5	1.0	2	3	5
Middle	190	1	148.6	1.0	7	15	25
Middle	192	1	92.9	1.0	5	9	15
Middle	197	1	30.2	1.0	2	3	5
Middle	199	1	74.3	1.0	4	7	12
Middle	203	1	46.5	1.0	2	5	8
Middle	207	1	41.8	1.0	2	4	7
Middle	209	1	41.8	1.0	2	4	7
Middle	211	1	75.3	1.0	4	8	13
Middle	225	1	55.7	1.0	3	6	9
Middle	227	1	111.5	1.0	6	11	19
Middle	228	1	55.7	1.0	3	6	9
Middle	237	1	46.5	1.0	2	5	8
Middle	239	1	46.5	1.0	2	5	8
Middle	249	1	130.1	1.0	7	13	22
Middle	262	1	37.2	1.0	2	4	6

Table C-21. Aerial Video-Derived Estimates of Potential Chinook Salmon Spawning Habitat Area and Potential Spawner Capacity, as the Number of Female Salmon, in the McCloud River between Shasta Lake and McCloud Dam (contd.)

Study Reach	Habitat Unit	Number Delineated Spawning Habitat Features	Spawning Habitat Area m^2	Dominant/ Subdominant Bed Composition Correction	Estimated Spawner Capacity (number females)		
					20 m^2 Spawning Territory	10 m^2 Spawning Territory	6 m^2 Spawning Territory
Middle	270	1	27.9	1.0	1	3	5
Upper	285	1	53.4	0.5	1	3	4
OHW Stage							
Lower	7	1	297.3	0.5	7	15	25
Lower	14	1	83.6	0.5	2	4	7
Lower	15	1	79	0.1	0	0	1
Lower	23	1	167.2	0.1	0	2	3
Lower	38	1	139.4	0.5	3	7	12
Lower	42	1	41.8	0.5	1	2	3
Lower	50	1	32.5	1.0	2	3	5
Lower	84	1	37.2	0.5	1	2	3
Lower	85	1	511	0.1	3	5	9
Middle	111	1	39.5	0.5	1	2	3
Middle	119	1	92.9	0.5	2	5	8
Middle	120	1	92.9	0.1	0	0	2
Middle	123	1	92.9	0.1	0	0	2
Middle	124	1	88.3	0.1	0	0	1
Middle	126	1	157.9	0.1	0	2	3
Middle	128	1	37.2	0.5	1	2	3
Middle	135	1	83.6	1.0	4	8	14
Middle	137	1	65	0.5	2	3	5
Middle	139	1	120.8	1.0	6	12	20

Table C-21. Aerial Video-Derived Estimates of Potential Chinook Salmon Spawning Habitat Area and Potential Spawner Capacity, as the Number of Female Salmon, in the McCloud River between Shasta Lake and McCloud Dam (contd.)

Study Reach	Habitat Unit	Number Delineated Spawning Habitat Features	Spawning Habitat Area m^2	Dominant/ Subdominant Bed Composition Correction	Estimated Spawner Capacity (number females)		
					20 m^2 Spawning Territory	10 m^2 Spawning Territory	6 m^2 Spawning Territory
Middle	147	1	67.4	0.5	2	3	6
Middle	155	1	85.9	0.1	0	0	1
Middle	163	1	41.8	1.0	2	4	7
Middle	166	1	62.7	1.0	3	6	10
Middle	169	1	111.5	1.0	6	11	19
Middle	172	1	46.5	1.0	2	5	8
Middle	174	1	37.2	1.0	2	4	6
Middle	190	1	148.6	1.0	7	15	25
Middle	192	1	92.9	1.0	5	9	15
Middle	197	1	34.8	1.0	2	3	6
Middle	199	1	74.3	1.0	4	7	12
Middle	203	1	46.5	1.0	2	5	8
Middle	207	1	62.7	1.0	3	6	10
Middle	209	1	139.4	1.0	7	14	23
Middle	211	1	75.3	1.0	4	8	13
Middle	225	1	92.9	1.0	5	9	15
Middle	227	1	111.5	1.0	6	11	19
Middle	228	1	55.7	1.0	3	6	9
Middle	237	1	46.5	1.0	2	5	8
Middle	239	1	46.5	1.0	2	5	8
Middle	249	1	130.1	1.0	7	13	22

Table C-21. Aerial Video-Derived Estimates of Potential Chinook Salmon Spawning Habitat Area and Potential Spawner Capacity, as the Number of Female Salmon, in the McCloud River between Shasta Lake and McCloud Dam (contd.)

Study Reach	Habitat Unit	Number Delineated Spawning Habitat Features	Spawning Habitat Area m^2	Dominant/ Subdominant Bed Composition Correction	Estimated Spawner Capacity (number females)		
					20 m^2 Spawning Territory	10 m^2 Spawning Territory	6 m^2 Spawning Territory
Middle	262	1	37.2	1.0	2	4	6
Middle	270	1	27.9	1.0	1	3	5
Upper	285	1	143.1	0.5	4	7	12

Key:
m^2 = square meter

Table C-22. Field-derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Values for the McCloud River

Study Reach	Study Site	Index Section	Number of Channel Units	Index Section Length (m)	Attribute											
					Channel Morphometry				Substrate					Habitat		
					Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Dom/subdominant bed substrate	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Ratio (proportion of pools in section)	Average Spawning Patch Size (m^2)	Average Max Pool Depth (ft)
Upper	Hawkins	1	4	358.4	ST	2.9	1.12	1.8	grav/cob	93	7	0	5	35	19	7.0
		2	4	444.7	ST	3.5	1.12	1.5	grav/cob	98	2	0	18	0	60	0.0
		3	3	210.3	ST	2.3	1.12	0.0	grav/cob	91	8	0	5	39	13	7.0
	Ah-Di-Na	1	4	237.7	ST	0.9	1.12	0.0	grav/cob	99	1	0	18	49	26	9.5
		2	4	244.1	ST	2.9	1.12	0.0	grav/cob	99	1	0	18	41	99	8.7
		3	4	338.3	ST	1.0	1.12	1.7	grav/cob	99	1	0	18	61	138	10.8
		4	4	264.3	ST	3.9	1.12	0.0	grav/cob	99	1	0	18	20	15	9.3
Middle	Ladybug	1	4	384.0	PB	1.6	1.28	0.0	grav/cob	88	6	1	5	0	18	0.0
		2	4	395.0	PB	1.4	1.28	1.4	grav/cob	90	5	0	18	0	267	0.0
		3	3	377.6	PB	1.3	1.28	2.0	grav/cob	97	3	0	18	35	48	7.2

Key:
% = percent
bld = boulder
CAS = cascade
cob = cobble
ft = feet
grav = gravel
m = meter
m^2 = square meter
PB = plane-bed
RP = riffle pool
ST = step-pool

Table C-23. Field-derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Metric Scores for the McCloud River

Study Reach	Study Site	Index Section	Number of Channel Units	Index Section Length (m)	Attribute											
					Channel Morphometry				Substrate					Habitat		
					Channel Type	Average Gradient	Average Entrenchment	Mean Channel Depth	Dom/subdominant Bed Substrate	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Ratio (proportion of pools in section)	Average Spawning Patch Size	Average Max Pool Depth
Upper	Hawkins	1	4	358.4	1	3	1	3	3	3	1	3	3	2	3	2
		2	4	444.7	1	2	1	3	3	3	1	3	3	1	3	0
		3	3	210.3	1	3	1	1	3	3	1	3	3	2	3	2
	Ah-Di-Na	1	4	237.7	1	3	1	1	3	3	1	3	3	3	3	3
		2	4	244.1	1	3	1	1	3	3	1	3	3	3	3	3
		3	4	338.3	1	3	1	3	3	3	1	3	3	1	3	3
		4	4	264.3	1	2	1	1	3	3	1	3	3	1	3	3
Middle	Ladybug	1	4	384.0	2	3	1	1	3	3	1	3	3	1	3	0
		2	4	395.0	2	3	1	3	3	3	1	3	3	1	3	0
		3	3	377.6	2	3	1	3	3	3	1	3	3	2	3	2

Key:
% = percent
0 = “none”
1 = “poor”
2 = “fair”
3 = “good”
m = meter

Table C-24. Mean Field-derived Chinook Salmon Spawning, Egg Incubation and Emergence Attribute Scores for the McCloud River by Index Section

Study Reach	Study Site	Index Section	Attribute		
			Channel Morphometry	Substrate	Habitat
Upper	Hawkins	1	2.0	2.6	2.3
		2	1.8	2.6	1.3
		3	1.5	2.6	2.3
	Ah-Di-Na	1	1.5	2.6	3.0
		2	1.5	2.6	3.0
		3	2.0	2.6	2.3
		4	1.3	2.6	2.3
Middle	Ladybug	1	1.8	2.6	1.3
		2	2.3	2.6	1.3
		3	2.3	2.6	2.3

Key:
1 = “poor”
2 = “fair”
3 = “good”

Table C-25. Field-derived Chinook Salmon Rearing Attribute Metric Values for the McCloud River.

Study Reach	Study Site	Index Section	Number of Channel Units	Index Section Length (ft)	Attribute															
					Channel Morphometry				Substrate					Cover				Habitat	
					Channel Type	Average Gradient (%)	Average Entrenchment (%)	Mean Channel Depth (ft)	Dom/subdominant Bed Substrate	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness (%)	Overhead Cover (% surface area)	Boulder Cover (%)	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep,>30 ft wide)
Upper	Hawkins	1	4	358.4	ST	2.9	1.12	2.6	grav/cob	93	7	0	5	17	30	1.1	2	35	100
		2	4	444.7	ST	3.5	1.12	2.0	grav/cob	98	2	0	18	14	21	1.8	2	0	0
		3	3	210.3	ST	2.3	1.12	3.2	grav/cob	91	8	0	5	16	14	3.3	1	39	100
	Ah-Di-Na	1	4	237.7	ST	0.9	1.12	3.5	grav/cob	99	1	0	18	18	13	0.8	2	49	100
		2	4	244.1	ST	2.9	1.12	3.5	grav/cob	99	1	0	18	4	21	1.2	2	41	100
		3	4	338.3	ST	1.0	1.12	3.6	grav/cob	99	1	0	18	15	19	2.1	2	61	100
		4	4	264.3	ST	3.9	1.12	3.3	grav/cob	99	1	0	18	12	21	1.9	2	20	100
Middle	Ladybug	1	4	384.0	PB	1.6	1.28	1.9	grav/cob	88	6	1	5	26	13	4.7	2	22	100
		2	4	395.0	PB	1.4	1.28	1.7	grav/cob	90	5	0	18	20	9	1.8	2	0	0
		3	3	377.6	PB	1.3	1.28	3.1	grav/cob	97	3	0	18	13	21	0.5	2	35	100

Key:
% = percent
cob = cobble
Fq = frequency
ft = feet
grav = gravel
LWD = large woody debris
m = meter
PB = plane-bed
ST = step-pool

Table C-26. Field-derived Chinook Salmon Rearing Attribute Metric Scores for the McCloud River

Study Reach	Study Site	Index Section	Number of Channel Units	Index Section Length (m)	Attribute															
					Channel Morphometry				Substrate					Cover				Habitat	
					Channel Type	Average Gradient	Average Entrenchment	Mean Channel Depth	Bed Substrate dominant / subdominant	% Gravel in Spawning Habitats	% Cobble in Spawning Habitats	% Fines in Spawning Habitats	Embeddedness	Overhead Cover (% surface area)	Boulder Cover	LWD (Overall Fq/100m)	Average Shelter Value (total cover)	Riffle Ratio (% pool/glide habitat)	Large Pool (>2 ft deep,>30 ft wide)
Upper	Hawkins	1	4	358.4	1	2	1	3	2	3	1	3	3	2	3	1	2	2	3
		2	4	444.7	1	2	1	3	2	3	1	3	3	2	3	1	2	1	1
		3	3	210.3	1	2	1	3	2	3	2	3	3	2	2	1	1	2	3
	Ah-Di-Na	1	4	237.7	1	3	1	2	2	3	1	3	3	2	2	1	2	3	3
		2	4	244.1	1	2	1	2	2	3	1	3	3	1	3	1	2	3	3
		3	4	338.3	1	3	1	2	2	3	1	3	3	2	2	1	2	1	3
		4	4	264.3	1	2	1	2	2	3	1	3	3	2	3	1	2	1	3
Middle	Ladybug	1	4	384.0	2	3	1	3	2	3	1	3	3	2	2	1	2	2	3
		2	4	395.0	2	3	1	3	2	3	1	3	3	2	2	1	2	1	1
		3	3	377.6	2	3	1	3	2	3	1	3	3	2	3	1	2	2	3

Key:
% = percent
0 = “none”
1 = “poor”
2 = “fair”
3 = “good”
Fq = frequency
ft = feet
LWD = large woody debris
m = meter
m^2 = square meter

Table C-27. Mean Field-derived Chinook Salmon Rearing Attribute Scores for the McCloud River by Index Section

Study Reach	Study Site	Index Section	Attribute			
			Channel Morphometry	Substrate	Cover	Habitat
Upper	Hawkins	1	1.8	2.4	2.0	2.5
		2	1.8	2.4	2.0	1.0
		3	1.8	2.6	1.5	2.5
	Ah-Di-Na	1	1.8	2.4	1.8	3.0
		2	1.5	2.4	1.8	3.0
		3	1.8	2.4	1.8	2.0
		4	1.5	2.4	2.0	2.0
Middle	Ladybug	1	2.3	2.4	1.8	2.5
		2	2.3	2.4	1.8	1.0
		3	2.3	2.4	2.0	2.5

Key:
1 = “poor”
2 = “fair”
3 = “good”

Table C-28. Field-derived Estimates of Potential Chinook Salmon Spawning Habitat Area and Potential Spawner Capacity, as the Number of Female Salmon, in the McCloud River between Squaw Valley Creek and McCloud Dam

Study Reach	River Stage	Number Delineated Spawning Habitat Features	Spawning Habitat Area m^2	Substrate Composition Coefficient	Estimated Spawner Capacity (number females)			Survey Reach Length (m)	Total Reach Length (m)	Expanded Estimate of Spawning Habitat Area m^2	Expanded Estimate of Spawner Capacity (number females)		
					20 m^2 Spawning Territory	10 m^2 Spawning Territory	6 m^2 Spawning Territory				20 m^2 Spawning Territory	10 m^2 Spawning Territory	6 m^2 Spawning Territory
Upper	Baseflow	27	867	1.0	43	87	145	2,098	5,471	2,261	113	226	377
Upper	OHW	27	917	1.0	46	92	153	2,098	5,471	2,391	120	239	399
Middle	baseflow	22	1573	1.0	79	157	262	1,157	16,576	22,536	1,127	2,254	3,756
Middle	OHW	22	1573	1.0	79	157	262	1,157	16,576	22,536	1,127	2,254	3,756
Lower	-	-	-	-	-	-	-	-	-	-	-	-	-

Key:
"-" = no data available
m = meters
m^2 = square meter

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