

APPENDIX 4G
KLAMATH RIVER INSTREAM FLOW STUDY
WEIGHTED USABLE AREA

Appendix F. Weighted usable area (WUA) values for rainbow trout and suckers in the J.C. Boyle bypass reach over the range of simulated flows.

J.C. Boyle Bypass Reach - Klamath River

SIMULATED DISCHARGE	TOTAL SURFACE AREA	Weighted Usable Area (WUA)										
		UKR U/A RBT Fry	UKR U/A RBT Juvenile	UKR U/A RBT Adult	Envelope RBT Fry	Envelope RBT Juvenile	Envelope RBT Adult	Pit River Sucker Juvenile	Pit River Sucker Adult	UNFFR Sucker Juvenile	UNFFR Sucker Adult	LNFFR Sucker Adult
100	77363.30	8212.13	14700.01	28204.87	19912.68	33142.14	47304.59	14723.91	17294.18	10342.89	25357.64	29495.66
150	83208.09	7595.51	13816.36	29987.45	18680.52	32248.58	48770.04	14344.08	18530.99	9670.57	26819.59	30925.83
200	86993.59	7165.12	13013.24	31068.09	17725.42	31122.40	49468.76	14064.75	19135.01	9210.54	27741.16	31755.61
250	88763.04	6835.23	12223.41	31624.89	16781.35	29989.16	49724.22	13793.26	19688.33	8833.42	28301.44	32122.68
300	90418.72	6671.65	11508.44	31804.58	15974.52	28886.09	49639.44	13482.18	20202.59	8554.90	28657.08	32147.58
350	92265.99	6667.82	11043.23	31753.57	15369.52	27835.35	49344.29	13136.07	20564.73	8325.35	28870.01	31951.10
400	94181.55	6679.32	10743.21	31577.53	15142.43	26868.19	48916.91	12858.34	20681.58	8204.59	29019.25	31610.13
450	95709.39	6752.41	10516.69	31355.77	15092.36	26013.29	48450.44	12553.35	20678.68	8175.92	29121.27	31184.81
500	97046.65	6882.99	10427.40	31125.94	15009.74	25294.21	47921.42	12244.39	20688.82	8138.99	29182.75	30709.76
550	98402.80	6899.55	10314.38	30890.49	14958.66	24630.67	47378.04	11968.62	20778.47	8127.43	29236.80	30218.88
600	99995.41	6965.26	10250.09	30661.54	15007.20	24014.86	46842.86	11683.01	20871.48	8138.41	29267.81	29753.31
650	101198.22	6982.92	10257.19	30440.62	15042.81	23493.72	46330.41	11429.06	20951.47	8112.81	29265.79	29313.58
700	102377.66	6993.12	10253.80	30227.58	15083.49	23061.68	45885.37	11220.16	21001.47	8073.89	29253.87	28910.87
750	103276.66	6970.01	10253.37	30028.75	15090.52	22675.85	45451.75	11033.63	21008.85	8047.53	29231.88	28547.23
800	104118.52	6964.28	10254.66	29842.45	15089.91	22347.25	45037.66	10888.14	21019.24	8005.80	29198.08	28212.42
850	105073.40	7001.20	10280.02	29650.82	15074.97	22066.67	44640.06	10791.21	21029.87	7917.02	29132.65	27912.96
900	106022.73	6918.11	10255.63	29455.77	14961.42	21807.02	44268.97	10717.42	21036.04	7819.70	29049.45	27648.86
950	106988.02	6890.14	10231.02	29268.54	14874.75	21575.43	43926.09	10674.52	21032.82	7718.30	28958.01	27410.84
1000	107824.88	6837.02	10224.07	29086.73	14792.32	21363.33	43607.20	10652.34	21044.68	7609.45	28850.02	27195.96
1100	108966.27	6728.75	10211.82	28733.12	14626.25	21006.11	43051.59	10632.75	21098.23	7409.47	28584.72	26828.63
1200	110077.04	6665.52	10223.81	28391.43	14494.32	20712.04	42599.81	10654.07	21119.93	7233.94	28298.73	26527.94
1300	111424.81	6521.24	10153.51	28097.57	14347.17	20452.77	42189.90	10706.98	21047.23	7061.05	27980.93	26279.30
1400	112753.48	6433.84	10088.63	27826.26	14162.49	20241.08	41825.96	10755.96	20890.91	6877.81	27673.14	26075.87
1500	113685.78	6303.03	10001.54	27587.86	13914.48	20087.05	41527.89	10796.45	20620.09	6712.83	27381.77	25907.88
1600	114493.72	6130.14	9876.24	27370.38	13582.24	19942.24	41231.90	10813.35	20274.50	6534.95	27110.55	25760.84
1700	115231.19	5924.67	9728.25	27160.85	13238.24	19789.88	40944.77	10789.48	19968.76	6357.36	26856.12	25630.04
1800	115913.38	5745.20	9533.41	26953.08	12905.88	19649.92	40667.06	10748.31	19717.44	6177.65	26629.04	25512.90
1900	116562.51	5622.59	9402.99	26736.02	12656.52	19481.05	40378.95	10671.18	19507.33	6006.63	26423.89	25403.40
2000	117293.58	5470.33	9269.15	26512.97	12437.60	19296.14	40106.38	10548.20	19384.16	5856.50	26238.99	25303.40
2200	118691.92	5174.45	9037.13	26063.63	12113.10	18857.53	39615.34	10218.09	19246.24	5660.55	25940.80	25130.08
2400	119906.94	4973.93	8776.56	25628.17	11661.94	18393.64	39258.97	9826.83	19126.67	5543.40	25737.38	24988.73
2600	121118.95	4880.70	8480.33	25305.48	11300.53	17895.77	39025.19	9429.42	19003.92	5452.81	25601.94	24865.04
2800	122571.02	4866.62	8257.81	25135.19	11144.75	17487.74	38894.55	9192.39	18894.81	5374.09	25527.09	24751.51
3000	123976.96	4880.91	8152.27	25080.02	11006.93	17193.35	38812.22	9128.93	18817.87	5281.45	25465.06	24656.73

Appendix F. Weighted usable area (WUA) values for rainbow trout and suckers in the J.C. Boyle peaking reach over the range of simulated flows.

J.C. Boyle Peaking Reach - Klamath River

SIMULATED DISCHARGE	TOTAL SURFACE AREA	Weighted Usable Area (WUA)							
		Envelope RBT Fry	Envelope RBT Juvenile	Envelope RBT Adult	Pit River Sucker Juvenile	Pit River Sucker Adult	UNFFR Sucker Juvenile	UNFFR Sucker Adult	LNFFR Sucker Adult
200	112352.94	29759.94	50557.39	54263.77	19458.10	15039.89	13752.22	25931.43	31592.88
300	119762.08	24939.73	47853.25	59781.33	18249.04	19439.08	12603.01	30878.92	37542.90
350	122252.13	23319.25	46154.14	60943.68	17709.43	21090.81	12071.97	32264.03	39265.44
400	125183.50	22074.73	44452.63	61468.27	17083.18	22404.90	11556.19	33186.64	40356.82
450	127808.09	21354.15	42703.83	61557.38	16377.49	23372.43	11198.00	33783.29	40944.40
500	130050.16	20936.65	40995.35	61208.34	15741.84	23859.73	10962.29	34135.63	41128.44
550	131971.09	20678.04	39400.94	60586.05	15098.75	24041.14	10785.36	34317.06	41012.84
600	133791.98	20402.05	37963.38	59808.17	14495.67	24083.92	10637.29	34363.24	40670.33
650	135438.53	20030.69	36623.53	58932.52	13944.95	24206.23	10473.19	34303.27	40151.78
700	136701.47	19581.77	35464.86	58028.05	13419.98	24309.72	10338.01	34167.43	39514.33
750	138027.64	19136.23	34472.63	57138.97	12929.21	24354.20	10184.96	33987.63	38804.30
800	139235.59	18719.75	33584.27	56260.78	12508.86	24310.79	10060.26	33778.35	38032.17
850	140356.98	18328.66	32792.82	55408.36	12123.65	24156.51	9939.52	33538.92	37223.39
900	141369.98	18050.60	32086.21	54559.73	11794.05	23938.41	9836.05	33260.08	36405.89
1000	143279.48	17622.54	30815.27	52904.78	11265.56	23550.25	9674.06	32662.46	34795.55
1100	144931.11	17215.82	29641.17	51349.92	10888.38	23229.57	9540.70	32045.77	33276.19
1200	146567.67	16971.89	28595.23	49834.82	10598.41	22978.30	9383.37	31424.81	31891.84
1300	148095.94	16750.89	27641.91	48388.05	10350.48	22589.97	9274.65	30838.88	30640.45
1400	149465.11	16556.34	26838.79	47031.30	10165.97	22120.75	9161.21	30280.39	29530.83
1500	150615.94	16350.55	26161.35	45777.36	10024.74	21555.88	9056.93	29723.38	28545.44
1600	151833.97	16098.58	25553.28	44602.95	9950.59	21011.21	8931.64	29175.22	27662.51
1700	153020.05	15906.99	25024.00	43522.70	9916.63	20429.83	8788.29	28633.96	26869.97
1800	154108.38	15818.04	24543.93	42516.01	9901.41	19853.22	8638.46	28093.66	26157.28
1900	155087.67	15717.73	24114.35	41584.04	9871.89	19325.67	8517.63	27558.16	25524.55
2000	156009.30	15541.12	23761.15	40727.32	9835.44	18876.04	8397.40	27044.64	24958.85
2200	158005.47	15254.59	23139.90	39257.63	9818.11	18158.10	8191.93	26116.93	23992.63
2400	159886.75	15202.97	22557.85	38049.23	9824.91	17588.06	8082.89	25285.51	23200.63
2600	161850.08	15256.48	22051.23	37042.68	9785.51	17066.91	8072.01	24566.56	22557.56
2800	163448.16	15357.71	21694.86	36264.76	9757.05	16621.13	8146.99	23927.28	22037.25
3000	165130.25	15550.50	21388.85	35623.79	9826.63	16260.29	8249.56	23372.60	21607.15

Appendix F. Weighted usable area (WUA) values for rainbow trout and suckers in the Copco No. 2 bypass reach over the range of simulated flows.

Copco No. 2 Bypass Reach - Klamath River

SIMULATED DISCHARGE	TOTAL SURFACE AREA	Weighted Usable Area (WUA)							
		Envelope RBT Fry	Envelope RBT Juvenile	Envelope RBT Adult	Pit River Sucker Juvenile	Pit River Sucker Adult	UNFFR Sucker Juvenile	UNFFR Sucker Adult	LNFFR Sucker Adult
50	56427.69	24993.00	31094.69	22306.13	13392.32	3717.22	12975.92	7425.93	11228.07
75	58736.11	21979.04	31842.02	26435.61	13529.78	5222.39	11168.04	10069.86	13800.73
100	60471.19	19686.49	31616.12	28882.70	13357.66	6469.99	9885.85	12190.89	15766.11
125	62459.00	18314.13	30774.09	30478.26	13061.10	7699.37	9068.12	13835.98	17244.93
150	64367.55	17636.71	29738.90	31614.23	12708.60	8793.76	8568.68	15101.16	18353.66
175	66151.34	17285.97	28681.02	32304.76	12441.83	9597.01	8326.01	16076.67	19154.22
200	67849.23	17242.14	27722.23	32646.24	12162.04	10211.78	8200.32	16783.06	19738.27
225	69151.26	17183.01	26856.09	32768.37	11869.41	10731.39	8135.68	17294.21	20146.16
250	70588.50	16925.33	26118.71	32776.06	11667.72	11274.72	8109.07	17643.48	20398.24
275	72018.60	16788.72	25568.34	32666.16	11467.53	11597.49	8123.07	17893.83	20540.00
300	73498.51	16739.18	25064.29	32491.03	11273.63	11755.85	8204.96	18066.73	20587.07
325	74830.36	16855.18	24671.31	32258.21	11130.74	11760.39	8324.34	18181.91	20564.44
350	76437.02	16943.34	24438.24	31989.58	11016.94	11735.44	8446.75	18260.05	20486.66
375	78413.36	17266.33	24254.88	31698.24	10928.62	11669.78	8624.05	18295.25	20368.81
400	79655.00	17744.86	24084.73	31426.52	10880.48	11673.13	8886.91	18288.23	20236.00
425	81132.83	18249.41	23990.76	31181.89	10815.55	11722.62	9146.09	18270.25	20090.15
450	82379.83	18649.50	24001.28	30968.39	10722.20	11753.83	9397.95	18237.54	19932.55
475	83747.88	19086.62	24017.57	30787.37	10632.84	11762.05	9662.39	18198.07	19778.91
500	84809.06	19432.29	24053.72	30645.54	10537.75	11801.18	9909.21	18156.65	19619.30
600	88575.24	20425.67	24588.59	30389.83	10426.09	11734.58	10479.10	18019.06	19083.49
700	91328.84	20783.96	25467.25	30494.71	10536.47	11728.73	10389.98	17982.50	18728.25
800	94304.92	20864.51	26363.01	30754.47	10758.04	11787.21	10114.92	18026.67	18580.89
900	96608.97	20996.00	26988.81	31145.07	11071.23	11789.19	9774.15	18164.41	18619.86
1000	98521.34	20435.72	27571.35	31603.08	11369.85	11769.84	9379.19	18354.53	18788.83
1100	100341.37	19832.95	27810.46	32151.25	11733.06	11809.46	8963.37	18599.00	19053.42
1200	102028.96	19258.35	27989.13	32776.46	12190.06	11940.64	8599.73	18823.92	19373.46
1300	103883.23	18902.55	28070.58	33496.31	12568.09	12159.59	8324.63	19101.85	19739.09
1500	107094.70	18115.63	28196.98	35007.92	12995.33	12831.17	7856.77	19851.76	20614.24
1750	110289.62	17190.55	28142.44	36456.41	13226.21	13325.34	7349.87	21172.31	21706.12
2000	112920.63	15948.28	27401.28	37505.33	12860.86	14177.57	6877.57	22403.45	22746.72

Appendix F. Weighted usable area (WUA) values for rainbow trout juvenile and adult in the Fall Creek bypass over the range of simulated flows.

Copco No. 2 Bypass Reach - Klamath River

Weighted Usable Area (WUA)

SIMULATED DISCHARGE	TOTAL SURFACE AREA	Small Stream Bucks/Griz RBT Adult	Small Stream Bucks/Griz RBT Juvenile
1	11423.35	22.52	925.10
2	12389.40	65.58	1558.78
3	12901.14	119.04	1930.50
4	13192.02	174.86	2136.07
5	13506.84	227.91	2249.75
6	13774.51	277.28	2307.51
7	13951.28	322.52	2339.08
8	14205.57	361.89	2355.13
9	14366.88	396.95	2364.22
10	14519.39	428.17	2365.92
11	14709.67	457.34	2363.21
12	14917.00	484.85	2356.82
13	15149.81	510.32	2357.26
14	15472.68	534.25	2351.32
15	15788.36	556.54	2349.39
16	16055.41	578.96	2338.34
17	16431.91	601.18	2337.05
18	16749.13	623.31	2342.39
19	17055.99	645.98	2345.71
20	17362.48	668.87	2344.24
21	17714.98	692.25	2348.11
22	18049.79	715.21	2358.16
23	18506.34	737.90	2367.41
24	18826.65	762.23	2367.83
25	19149.95	786.59	2378.56
26	19395.84	811.44	2391.69
27	19769.63	836.78	2408.23
28	20177.12	861.46	2431.86
29	20518.29	884.99	2453.06
30	20794.07	910.15	2472.02