APPENDIX B2

Habitat Area versus Flow Relationships and Effective Habitat Analyses

Habitat Area versus Flow Relationships

Effective Habitat Analyses

Middle Fork American River at Fords Bar MF14.1

Effective Habitat Matrices

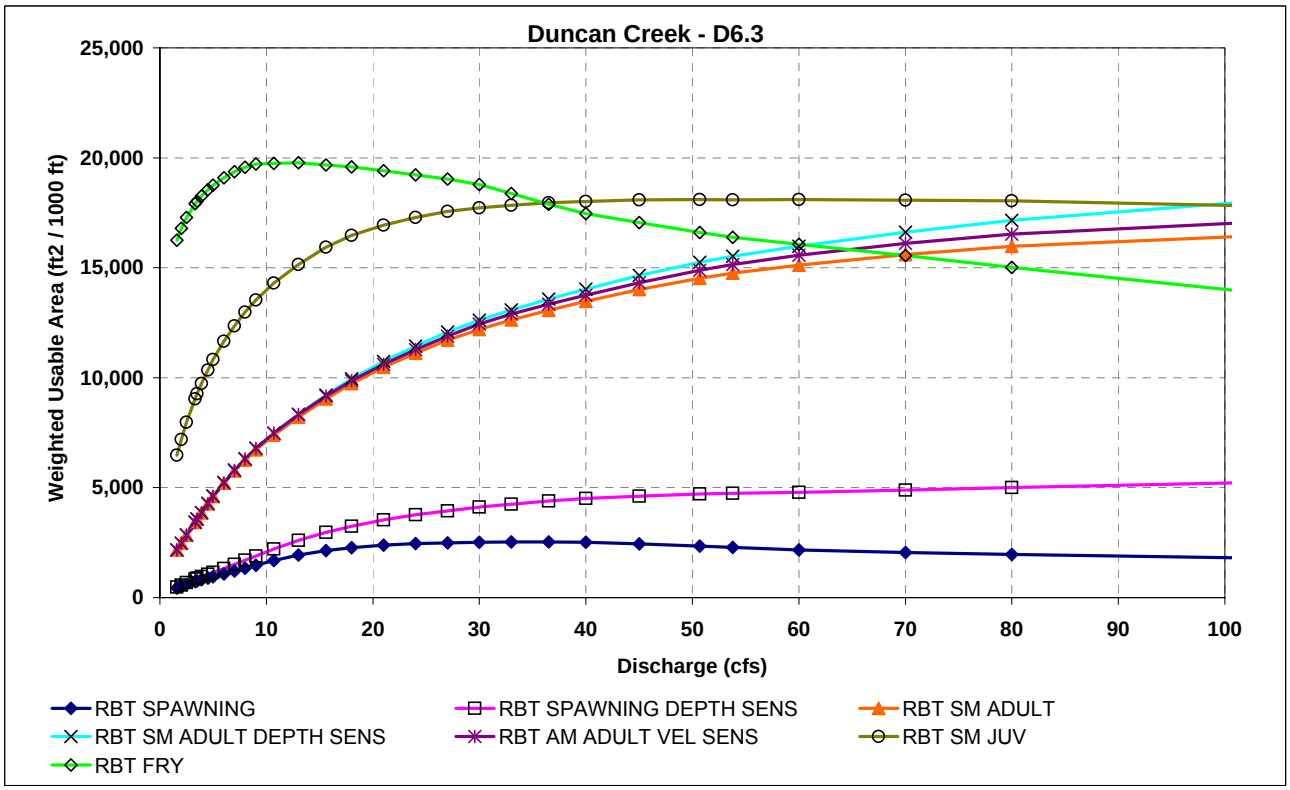
Middle Fork American River at Buckeye Bar MF4.8

Effective Habitat Matrices

HABITAT AREA VERSUS FLOW RELATIONSHIPS

Duncan Creek D6.3

Figure 1. Duncan Creek - D6.3 Weighted Usable Area (top) and Percent of Maximum Weighted Usable Area (bottom).



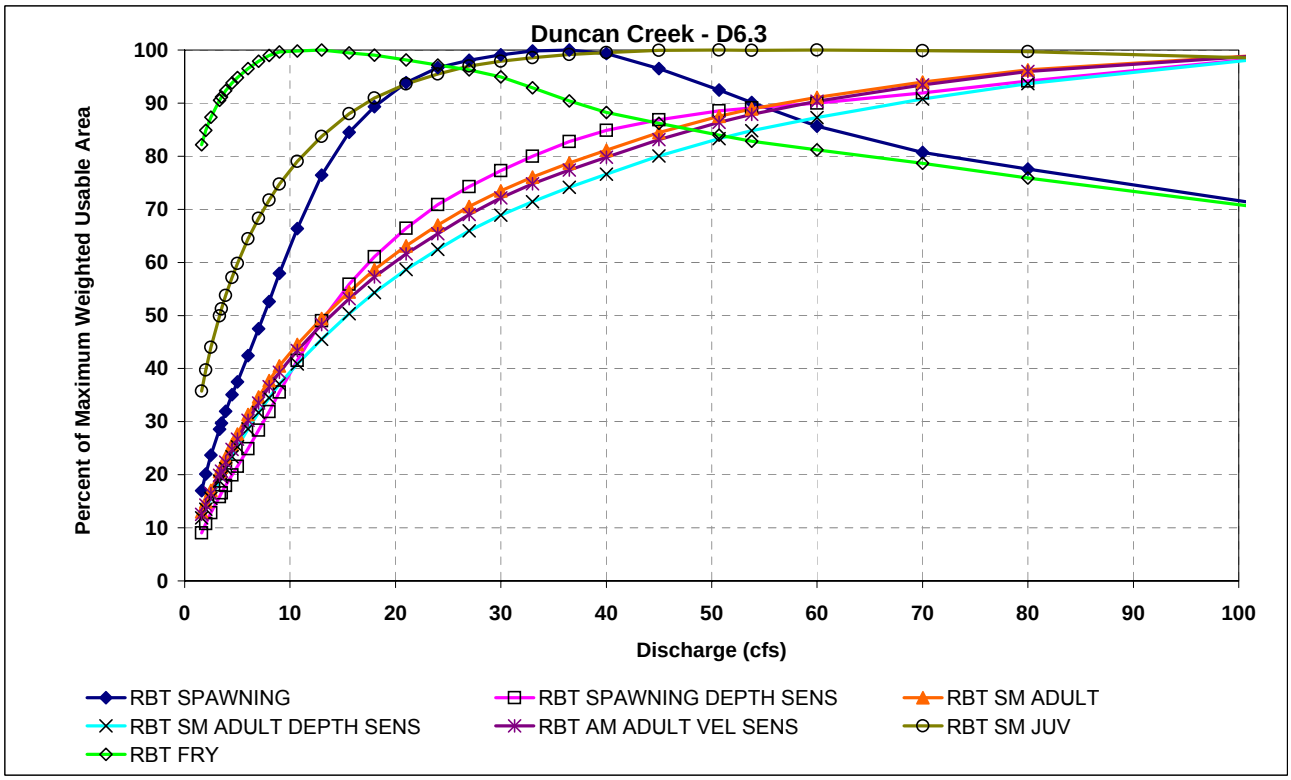


Table 1A. Duncan Creek - D6.3 Weighted Usable Area.

Discharge (cfs)	Weighted Usable Area (ft^2 / 1000 ft)						
	RBT SPAWNING	RBT SPAWNING DEPTH SENS	RBT SM ADULT	RBT SM ADULT DEPTH SENS	RBT AM ADULT VEL SENS	RBT SM JUV	RBT FRY
1.6	432	479	2162	2170	2162	6473	16248
2	511	574	2468	2477	2468	7193	16789
2.5	601	684	2834	2845	2834	7970	17283
3.3	725	842	3423	3439	3425	9036	17910
3.5	754	880	3566	3583	3568	9272	18027
3.9	811	956	3851	3871	3854	9730	18263
4.5	890	1062	4263	4287	4268	10350	18552
5	951	1149	4592	4620	4598	10820	18757
6	1076	1325	5205	5242	5216	11660	19096
7	1206	1509	5757	5802	5781	12359	19365
8	1335	1697	6259	6316	6303	12984	19576
9	1469	1890	6720	6790	6779	13531	19716
10.7	1684	2210	7390	7485	7481	14308	19749
13	1939	2606	8203	8335	8323	15154	19783
15.6	2144	2971	9034	9211	9165	15929	19673
18	2267	3249	9732	9947	9868	16470	19589
21	2381	3531	10472	10737	10614	16945	19411
24	2454	3769	11121	11437	11274	17286	19225
27	2488	3950	11711	12077	11892	17557	19040
30	2515	4111	12201	12613	12437	17718	18779
33	2532	4256	12626	13082	12889	17843	18381
36.5	2537	4400	13070	13578	13344	17956	17888
40	2521	4515	13471	14030	13757	18018	17457
45	2448	4618	14017	14652	14323	18088	17051
50.7	2346	4709	14527	15246	14891	18098	16609
53.8	2287	4739	14758	15526	15152	18092	16388
60	2173	4787	15119	15984	15573	18103	16063
70	2048	4890	15602	16621	16108	18077	15562
80	1969	5007	15974	17149	16536	18048	15015
110	1742	5319	16598	18308	17237	17742	13520

Table 1B. Duncan Creek - D6.3 Percent of Maximum Weighted Usable Area.

Discharge (cfs)	Percent of Maximum Weighted Usable Area						
	RBT SPAWNING	RBT SPAWNING DEPTH SENS	RBT SM ADULT	RBT SM ADULT DEPTH SENS	RBT AM ADULT VEL SENS	RBT SM JUV	RBT FRY
1.6	17	9	13	12	13	36	82
2	20	11	15	14	14	40	85
2.5	24	13	17	16	16	44	87
3.3	29	16	21	19	20	50	91
3.5	30	17	21	20	21	51	91
3.9	32	18	23	21	22	54	92
4.5	35	20	26	23	25	57	94
5	37	22	28	25	27	60	95
6	42	25	31	29	30	64	97
7	48	28	35	32	34	68	98
8	53	32	38	35	37	72	99
9	58	36	40	37	39	75	100
10.7	66	42	45	41	43	79	100
13	76	49	49	46	48	84	100
15.6	84	56	54	50	53	88	99
18	89	61	59	54	57	91	99
21	94	66	63	59	62	94	98
24	97	71	67	62	65	95	97
27	98	74	71	66	69	97	96
30	99	77	74	69	72	98	95
33	100	80	76	71	75	99	93
36.5	100	83	79	74	77	99	90
40	99	85	81	77	80	100	88
45	96	87	84	80	83	100	86
50.7	92	89	88	83	86	100	84
53.8	90	89	89	85	88	100	83
60	86	90	91	87	90	100	81
70	81	92	94	91	93	100	79
80	78	94	96	94	96	100	76
110	69	100	100	100	100	98	68

Figure 2. Duncan Creek - D6.3 Spatial Niche Area by Individual Niche (top) and by Cumulative Area (bottom).

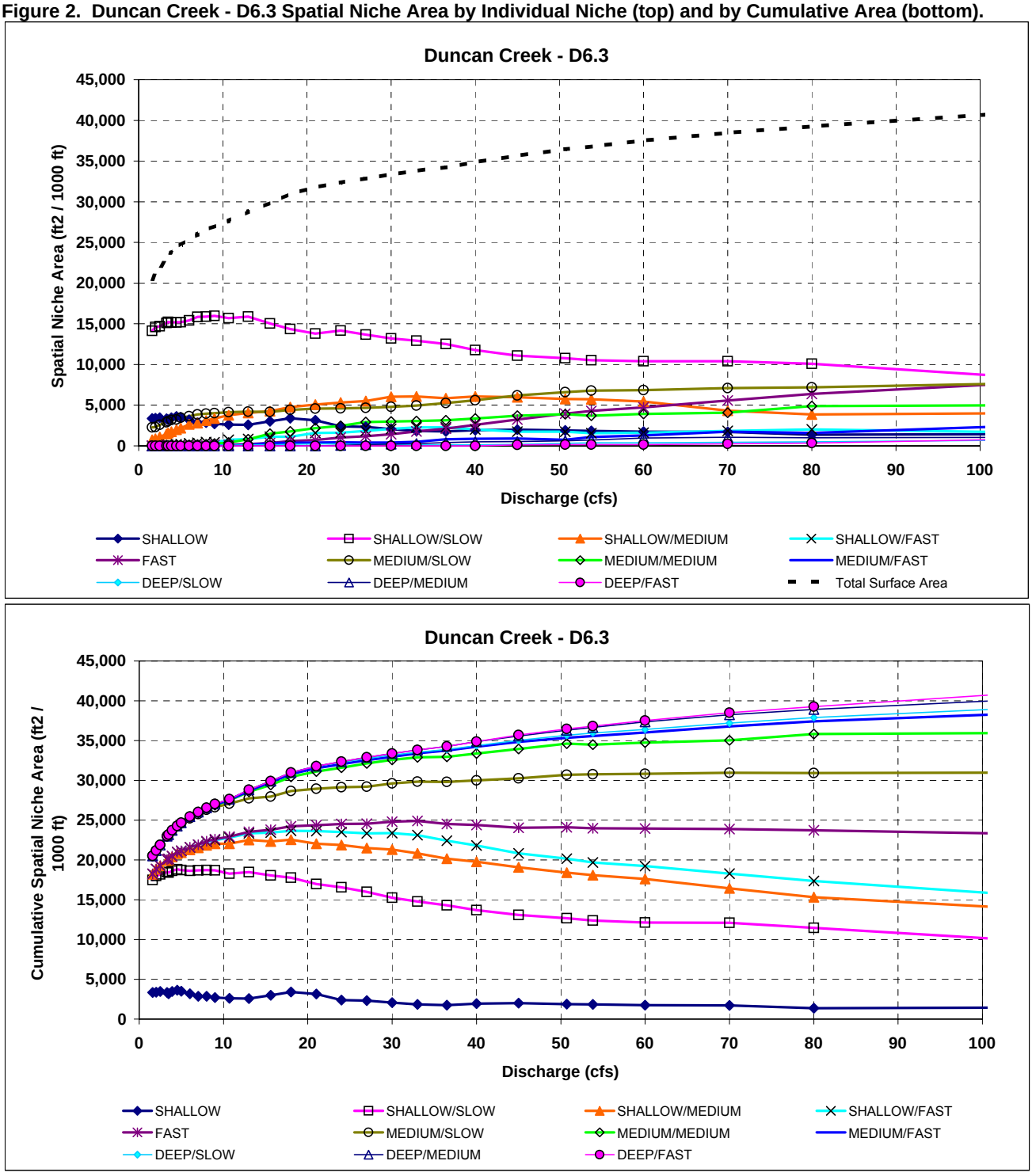
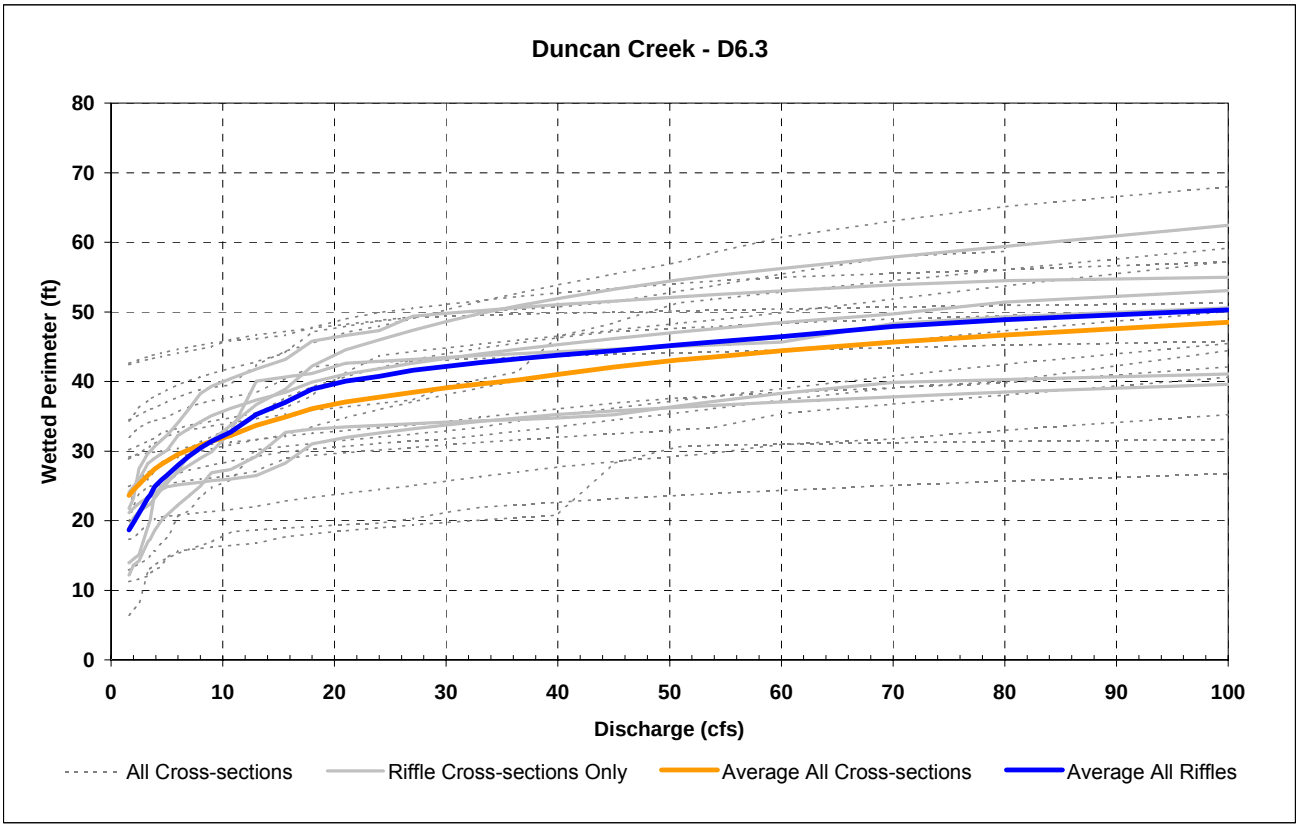
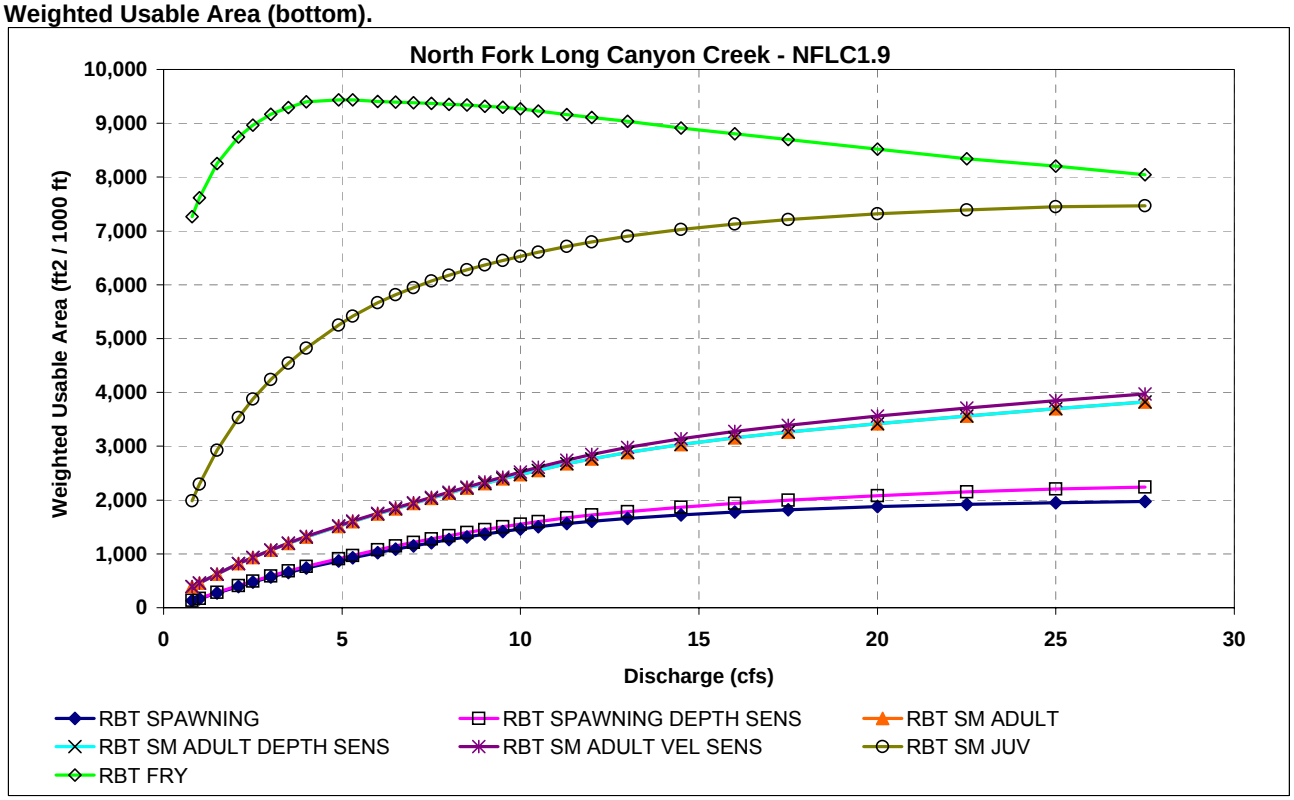


Figure 3. Duncan Creek - D6.3 Wetted Perimeter.



North Fork Long Canyon Creek NFLC1.9

Figure 4. North Fork Long Canyon Creek - NFLC1.9 Weighted Usable Area (top) and Percent of Maximum Weighted Usable Area (bottom).



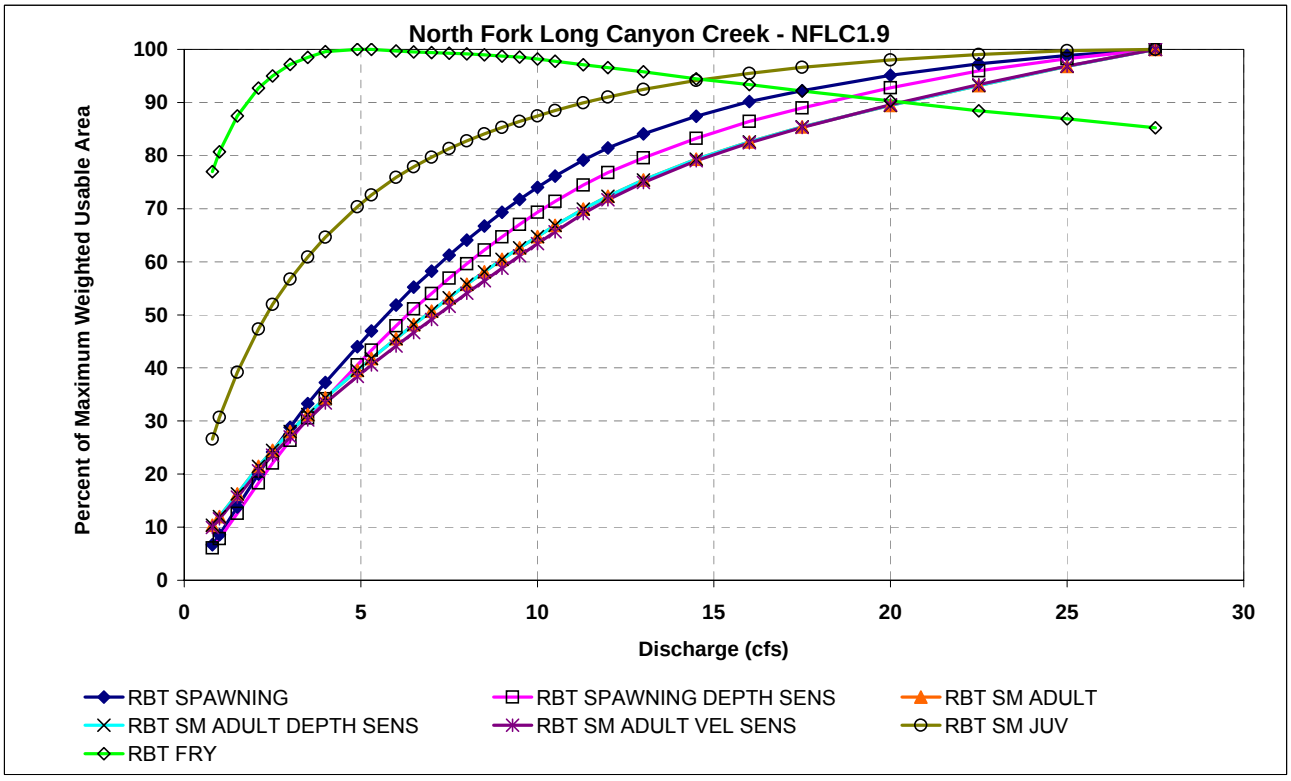


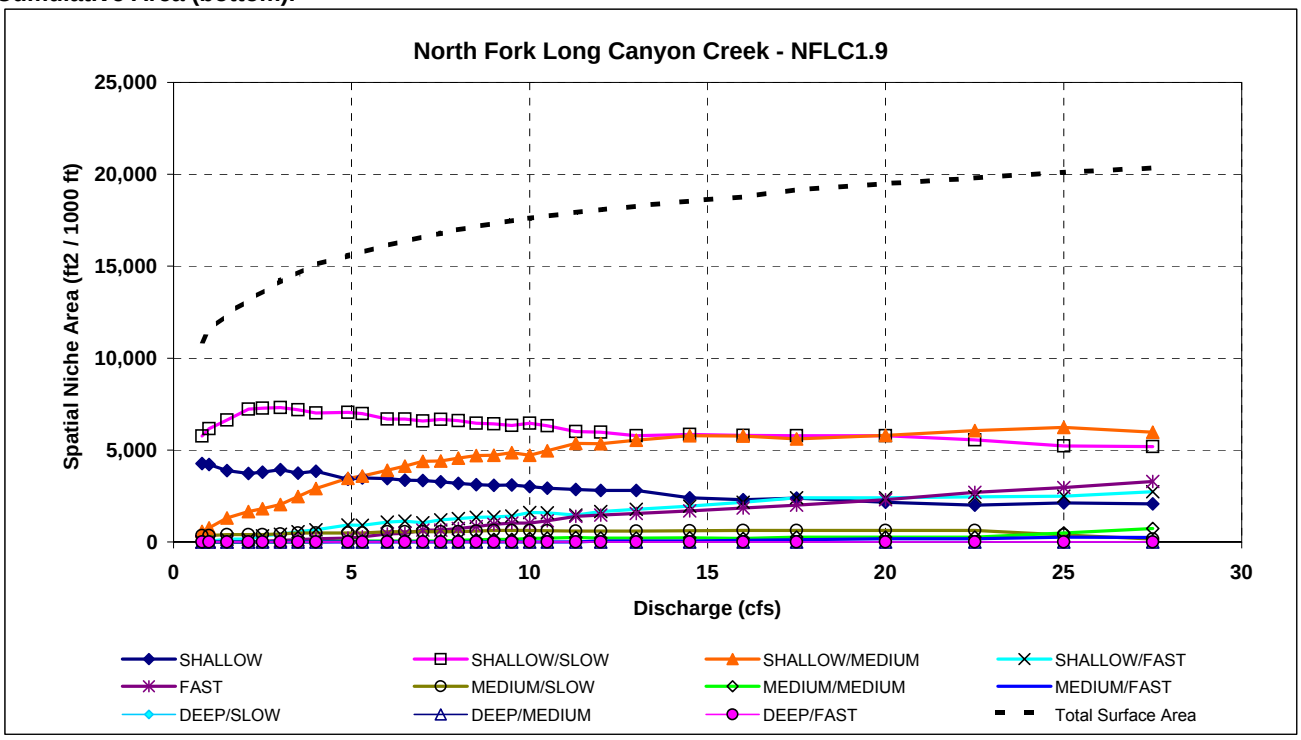
Table 2A. North Fork Long Canyon Creek - NFLC1.9 Weighted Usable Area.

Discharge (cfs)	Weighted Usable Area (ft^2 / 1000 ft)						
	RBT SPAWNING	RBT SPAWNING DEPTH SENS	RBT SM ADULT	RBT SM ADULT DEPTH SENS	RBT SM ADULT VEL SENS	RBT SM JUV	RBT FRY
0.8	132	136	395	395	395	1984	7264
1	169	175	459	459	459	2292	7617
1.5	273	283	622	622	622	2926	8252
2.1	395	411	820	820	820	3532	8747
2.5	476	495	935	935	936	3878	8964
3	568	591	1070	1070	1072	4236	9169
3.5	657	685	1193	1193	1199	4543	9292
4	734	767	1313	1313	1326	4823	9397
4.9	868	910	1511	1511	1524	5252	9436
5.3	926	972	1597	1597	1611	5418	9434
6	1022	1075	1740	1740	1753	5665	9407
6.5	1089	1146	1840	1840	1853	5815	9392
7	1149	1212	1937	1937	1952	5948	9380
7.5	1208	1276	2034	2034	2050	6069	9367
8	1263	1337	2130	2130	2147	6179	9355
8.5	1316	1395	2222	2222	2242	6277	9338
9	1367	1451	2309	2309	2336	6368	9318
9.5	1415	1504	2393	2393	2428	6451	9298
10	1460	1554	2474	2474	2518	6530	9267
10.5	1502	1601	2553	2553	2607	6605	9228
11.3	1561	1669	2672	2672	2743	6713	9164
12	1606	1722	2764	2764	2847	6797	9110
13	1658	1785	2881	2881	2976	6902	9036
14.5	1724	1867	3030	3030	3138	7030	8914
16	1779	1938	3156	3156	3273	7130	8808
17.5	1819	1995	3263	3263	3389	7212	8696
20	1876	2081	3419	3419	3559	7317	8519
22.5	1919	2151	3561	3561	3710	7392	8342
25	1950	2203	3699	3699	3847	7448	8204
27.5	1972	2242	3821	3821	3973	7466	8042

Table 2B. North Fork Long Canyon Creek - NFLC1.9 Percent of Maximum Weighted Usable Area.

Discharge (cfs)	Percent of Maximum Weighted Usable Area						
	RBT SPAWNING	RBT SPAWNING DEPTH SENS	RBT SM ADULT	RBT SM ADULT DEPTH SENS	RBT SM ADULT VEL SENS	RBT SM JUV	RBT FRY
0.8	7	6	10	10	10	27	77
1	9	8	12	12	12	31	81
1.5	14	13	16	16	16	39	87
2.1	20	18	21	21	21	47	93
2.5	24	22	24	24	24	52	95
3	29	26	28	28	27	57	97
3.5	33	31	31	31	30	61	98
4	37	34	34	34	33	65	100
4.9	44	41	40	40	38	70	100
5.3	47	43	42	42	41	73	100
6	52	48	46	46	44	76	100
6.5	55	51	48	48	47	78	100
7	58	54	51	51	49	80	99
7.5	61	57	53	53	52	81	99
8	64	60	56	56	54	83	99
8.5	67	62	58	58	56	84	99
9	69	65	60	60	59	85	99
9.5	72	67	63	63	61	86	99
10	74	69	65	65	63	87	98
10.5	76	71	67	67	66	88	98
11.3	79	74	70	70	69	90	97
12	81	77	72	72	72	91	97
13	84	80	75	75	75	92	96
14.5	87	83	79	79	79	94	94
16	90	86	83	83	82	96	93
17.5	92	89	85	85	85	97	92
20	95	93	89	89	90	98	90
22.5	97	96	93	93	93	99	88
25	99	98	97	97	97	100	87
27.5	100	100	100	100	100	100	85

Figure 5. North Fork Long Canyon Creek - NFLC1.9 Spatial Niche Area by Individual Niche (top) and by Cumulative Area (bottom).



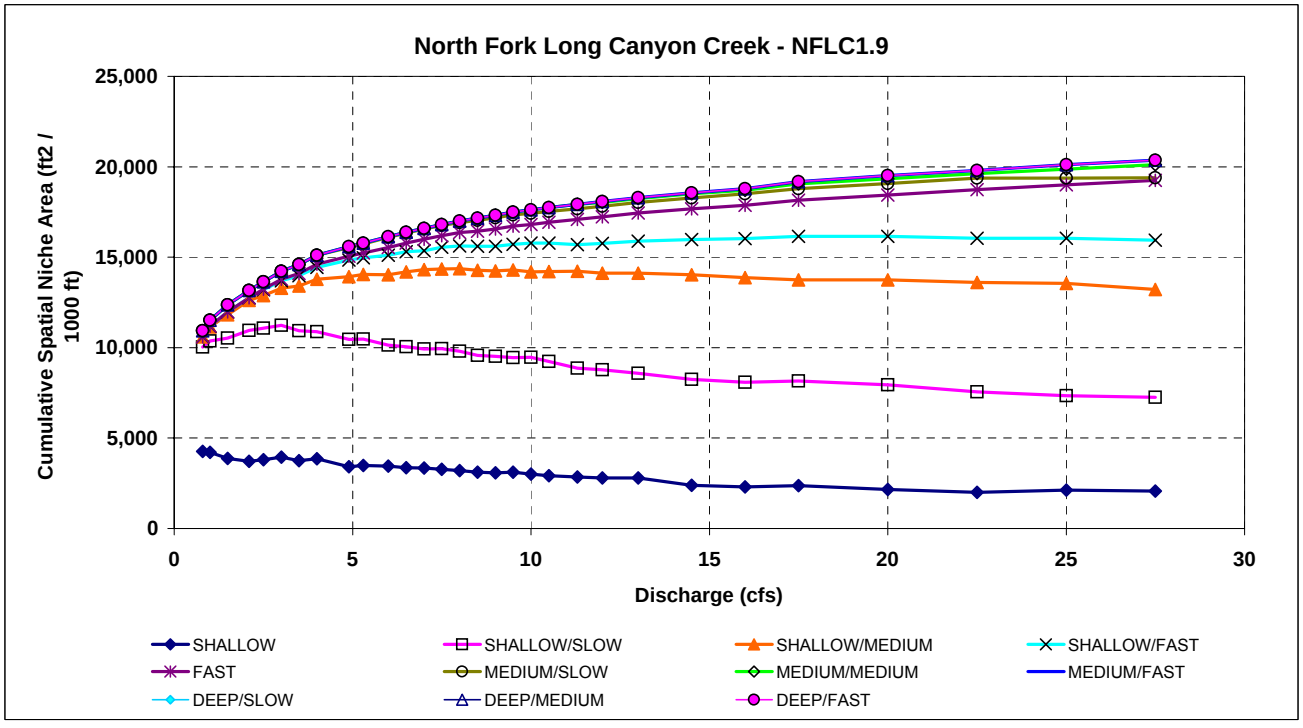
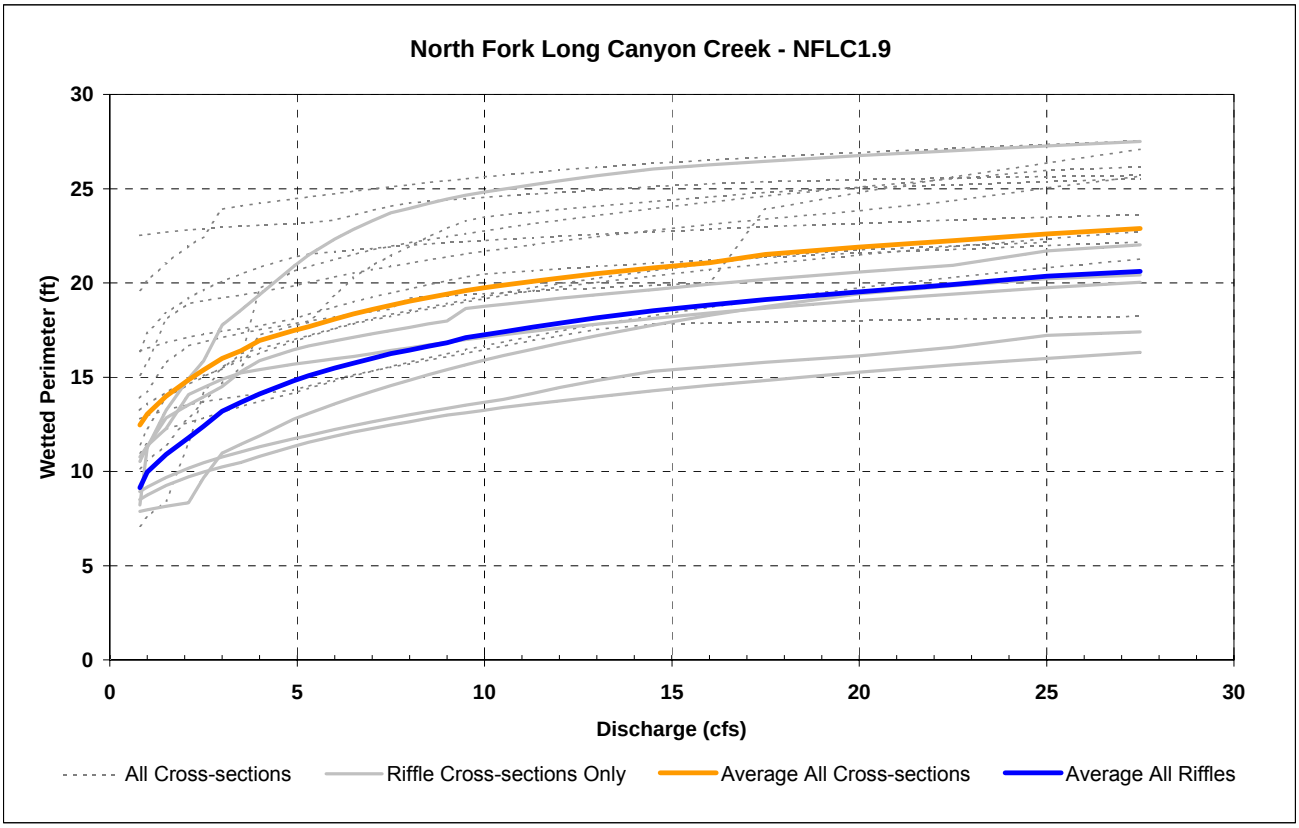
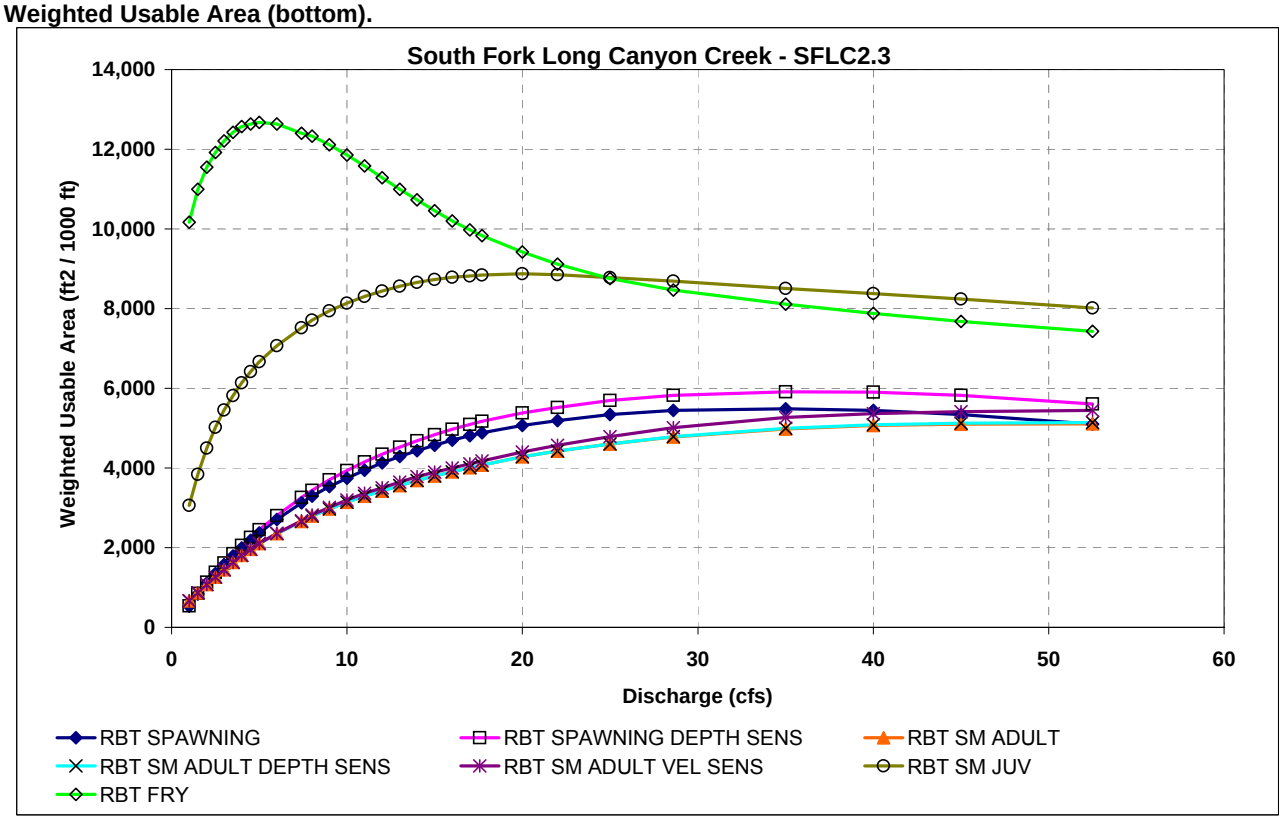


Figure 6. North Fork Long Canyon Creek - NFLC1.9 Wetted Perimeter.



South Fork Long Canyon Creek SFLC2.3

Figure 7. South Fork Long Canyon Creek - SFLC2.3 Weighted Usable Area (top) and Percent of Maximum Weighted Usable Area (bottom).



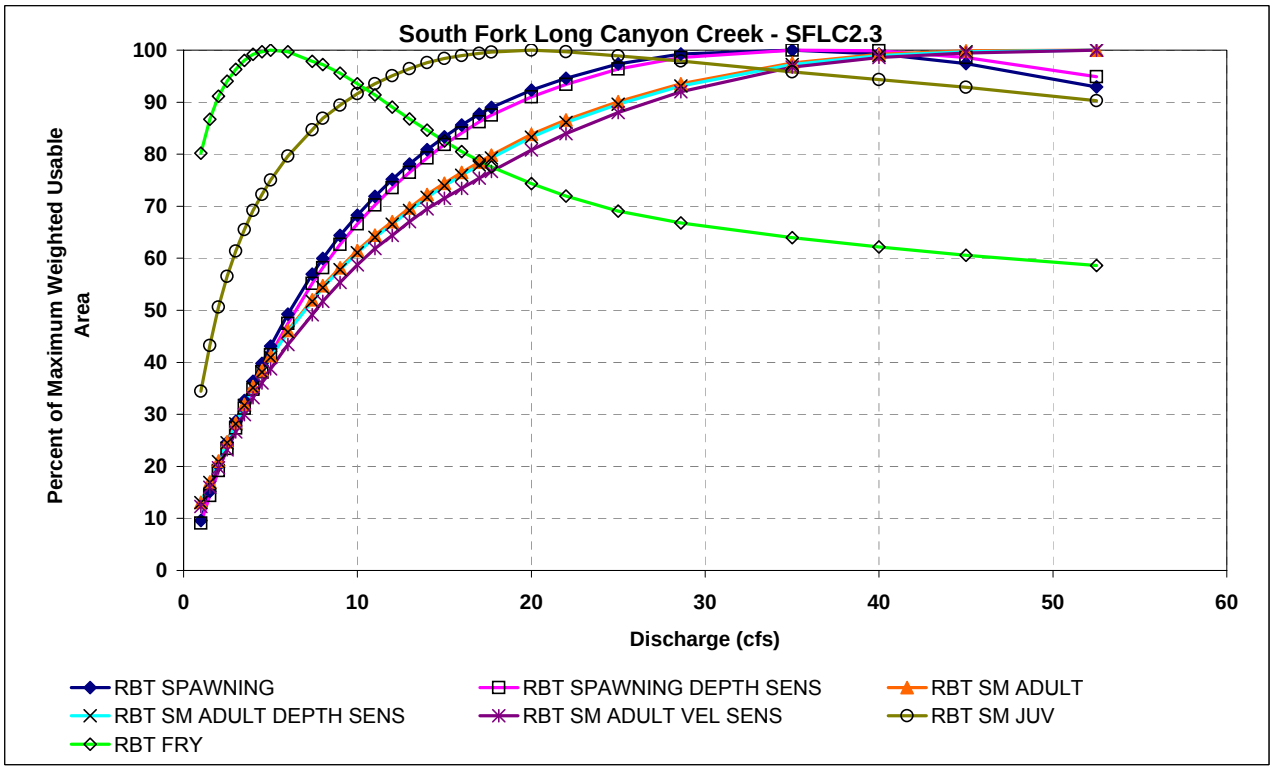


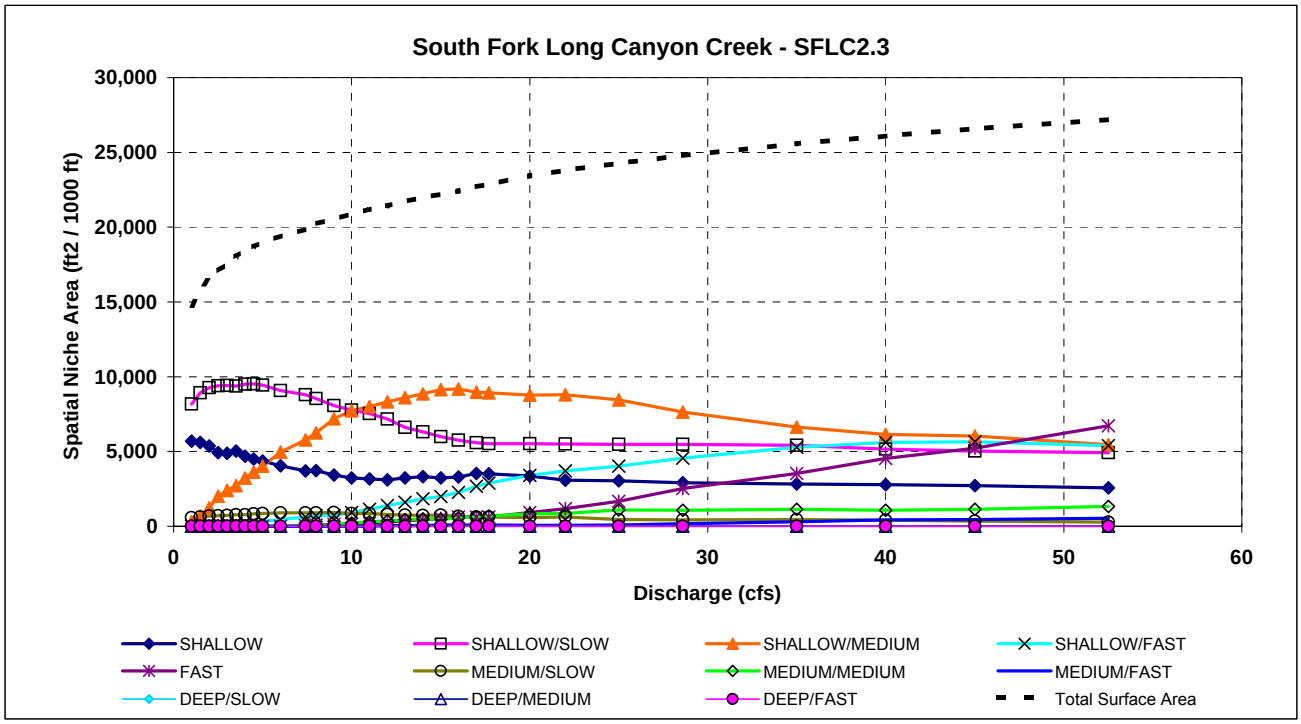
Table 3A. South Fork Long Canyon Creek - SFLC2.3 Weighted Usable Area.

Discharge (cfs)	Weighted Usable Area (ft^2 / 1000 ft)						
	RBT SPAWNING	RBT SPAWNING DEPTH SENS	RBT SM ADULT	RBT SM ADULT DEPTH SENS	RBT SM ADULT VEL SENS	RBT SM JUV	RBT FRY
1	526	538	670	670	670	3058	10167
1.5	833	852	870	870	870	3838	10994
2	1108	1135	1074	1074	1074	4495	11550
2.5	1351	1385	1262	1262	1262	5018	11919
3	1574	1618	1448	1448	1448	5451	12207
3.5	1791	1844	1630	1630	1630	5814	12427
4	1994	2057	1806	1806	1807	6140	12570
4.5	2184	2257	1961	1961	1962	6415	12637
5	2367	2450	2106	2106	2108	6663	12675
6	2703	2807	2355	2355	2362	7070	12635
7.4	3125	3259	2658	2658	2675	7517	12401
8	3292	3439	2794	2794	2816	7714	12327
9	3532	3701	2971	2971	3011	7941	12110
10	3746	3935	3139	3139	3198	8135	11854
11	3945	4151	3290	3290	3367	8307	11586
12	4125	4347	3422	3422	3506	8441	11288
13	4286	4521	3558	3558	3648	8561	10997
14	4436	4684	3688	3688	3782	8662	10727
15	4574	4835	3799	3799	3893	8734	10457
16	4696	4969	3905	3905	3998	8787	10204
17	4812	5096	4006	4006	4104	8823	9978
17.7	4882	5172	4075	4075	4176	8842	9828
20	5065	5378	4280	4282	4398	8877	9423
22	5191	5521	4422	4426	4569	8851	9117
25	5342	5695	4599	4606	4790	8780	8757
28.6	5446	5824	4776	4785	5008	8694	8468
35	5487	5909	4981	4998	5267	8506	8109
40	5447	5902	5065	5088	5365	8377	7879
45	5345	5825	5098	5126	5413	8244	7678
52.5	5101	5608	5105	5141	5443	8014	7430

Table 3B. South Fork Long Canyon Creek - SFLC2.3 Percent of Maximum Weighted Usable Area.

Discharge (cfs)	Percent of Maximum Weighted Usable Area						
	RBT SPAWNING	RBT SPAWNING DEPTH SENS	RBT SM ADULT	RBT SM ADULT DEPTH SENS	RBT SM ADULT VEL SENS	RBT SM JUV	RBT FRY
1	10	9	13	13	12	34	80
1.5	15	14	17	17	16	43	87
2	20	19	21	21	20	51	91
2.5	25	23	25	25	23	57	94
3	29	27	28	28	27	61	96
3.5	33	31	32	32	30	65	98
4	36	35	35	35	33	69	99
4.5	40	38	38	38	36	72	100
5	43	41	41	41	39	75	100
6	49	48	46	46	43	80	100
7.4	57	55	52	52	49	85	98
8	60	58	55	54	52	87	97
9	64	63	58	58	55	89	96
10	68	67	61	61	59	92	94
11	72	70	64	64	62	94	91
12	75	74	67	67	64	95	89
13	78	77	70	69	67	96	87
14	81	79	72	72	69	98	85
15	83	82	74	74	72	98	83
16	86	84	76	76	73	99	81
17	88	86	78	78	75	99	79
17.7	89	88	80	79	77	100	78
20	92	91	84	83	81	100	74
22	95	93	87	86	84	100	72
25	97	96	90	90	88	99	69
28.6	99	99	94	93	92	98	67
35	100	100	98	97	97	96	64
40	99	100	99	99	99	94	62
45	97	99	100	100	99	93	61
52.5	93	95	100	100	100	90	59

Figure 8. South Fork Long Canyon Creek - SFLC2.3 Spatial Niche Area by Individual Niche (top) and by Cumulative Area (bottom).



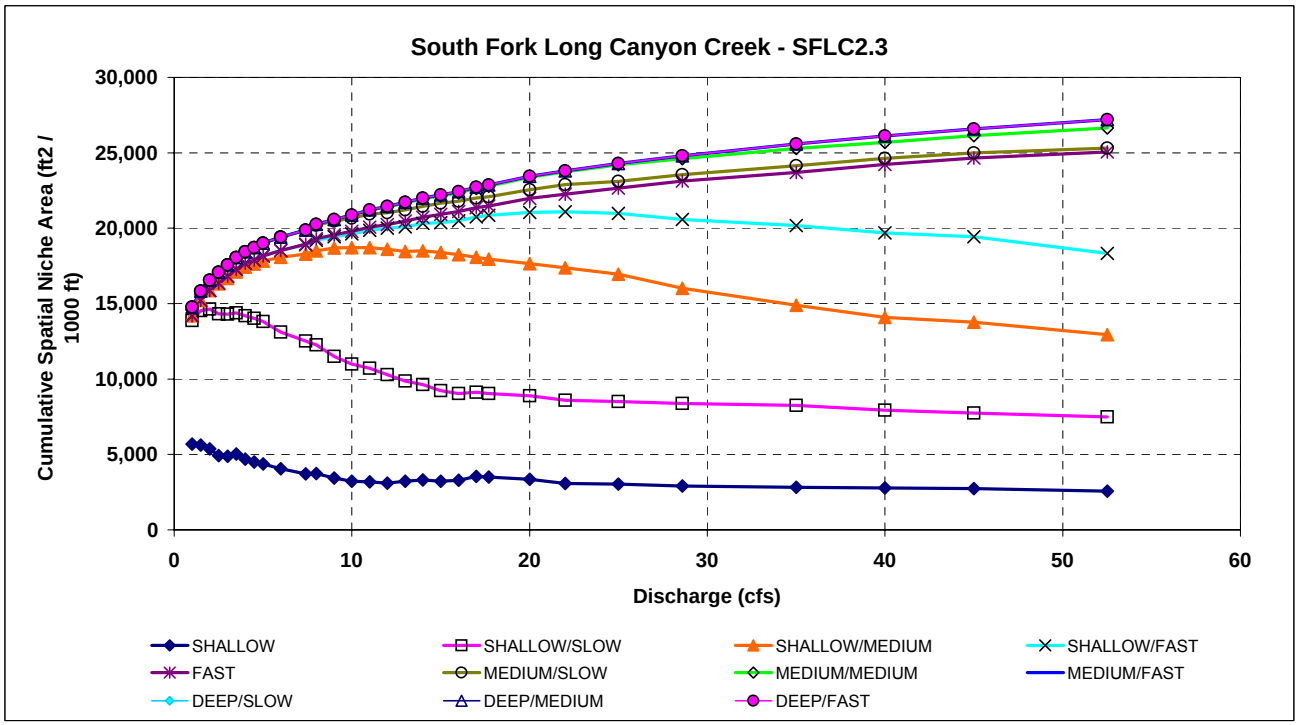
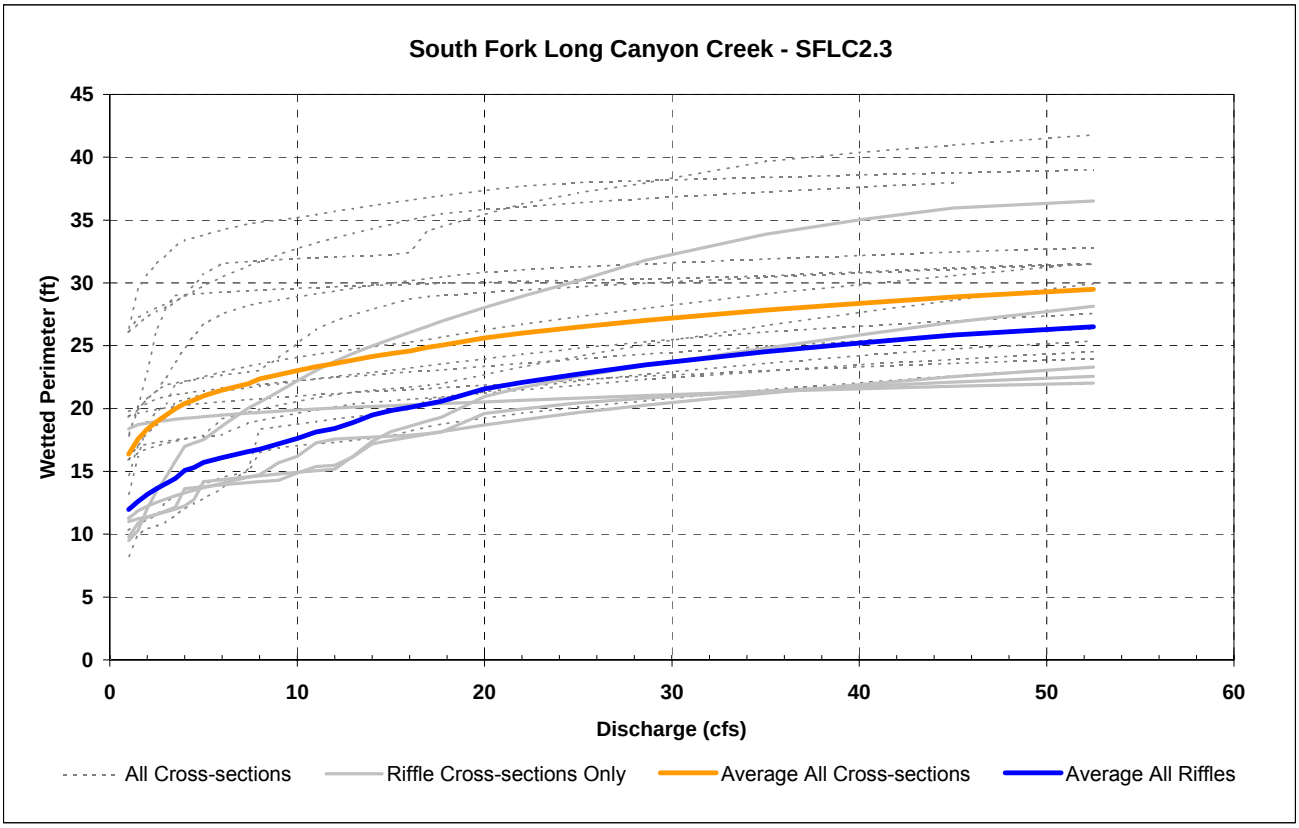
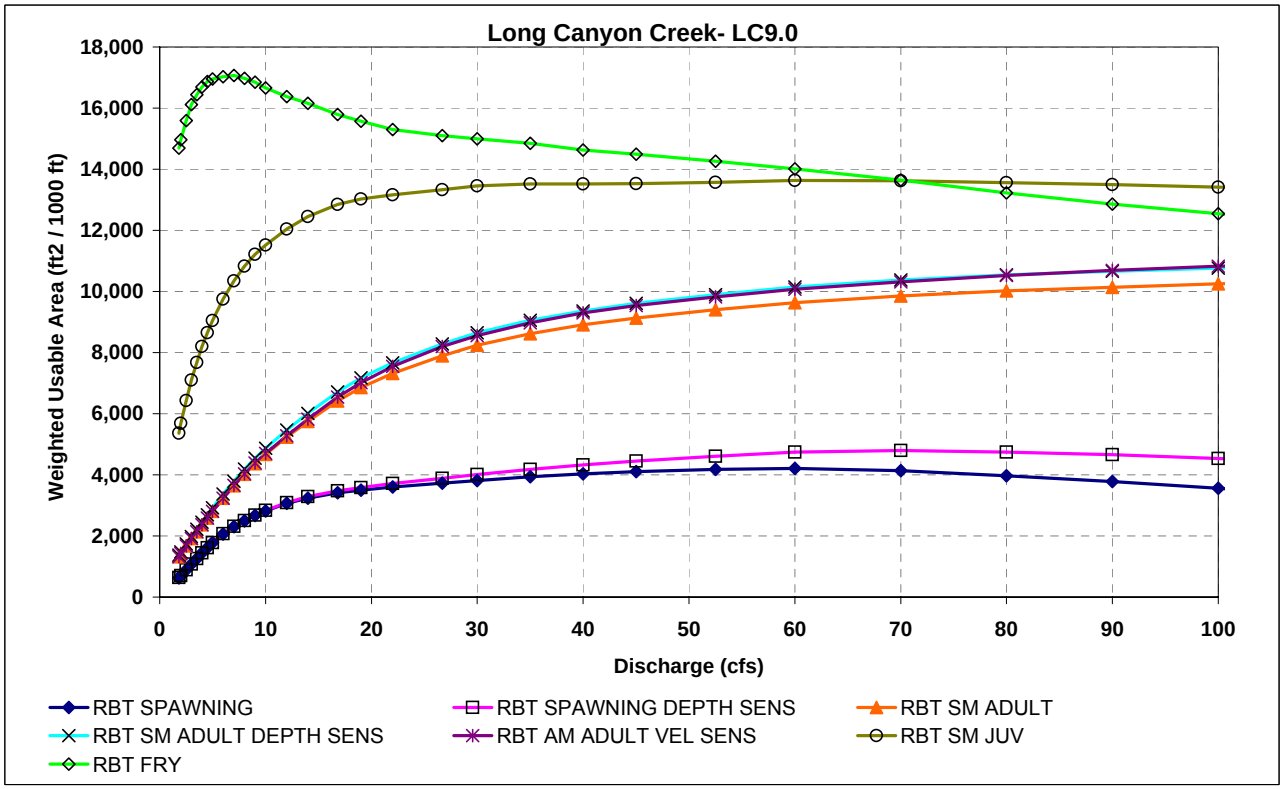


Figure 9. South Fork Long Canyon Creek - SFLC2.3 Wetted Perimeter.



Long Canyon Creek LC9.0

Figure 10. Long Canyon Creek- LC9.0 Weighted Usable Area (top) and Percent of Maximum Weighted Usable Area (bottom).



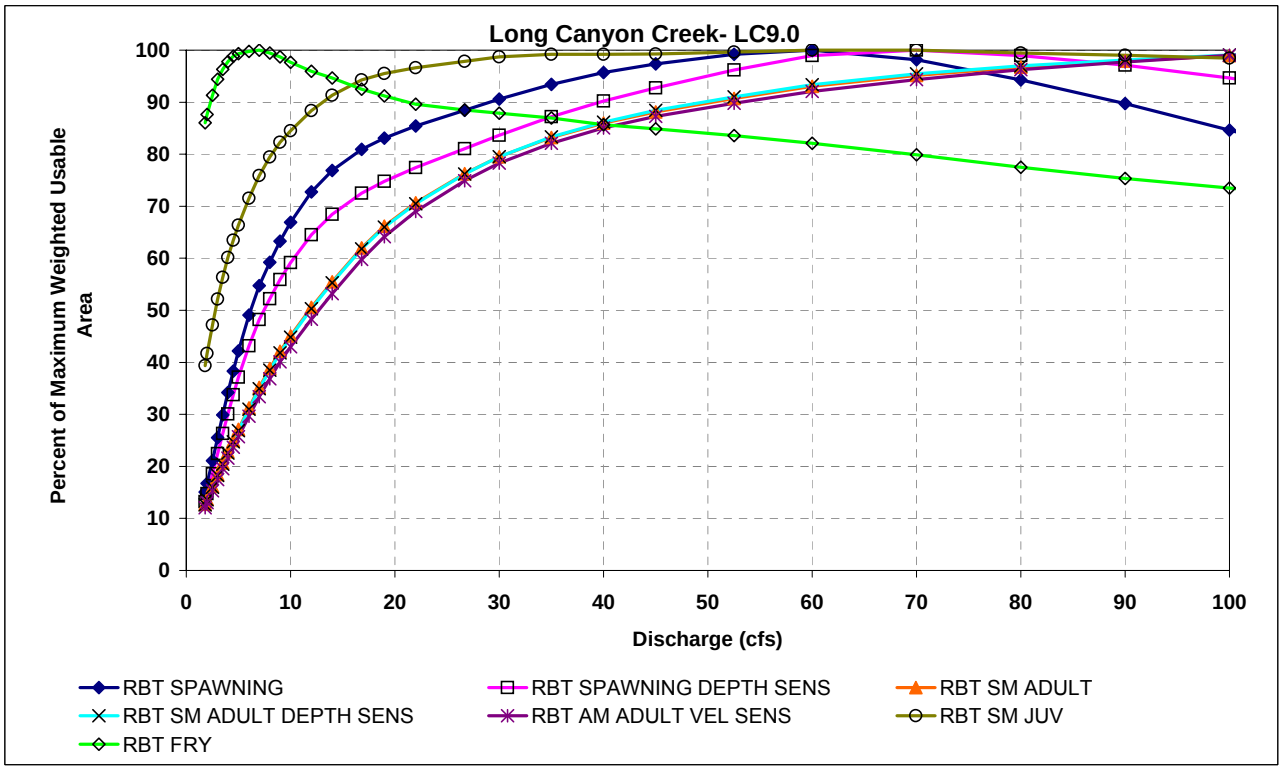


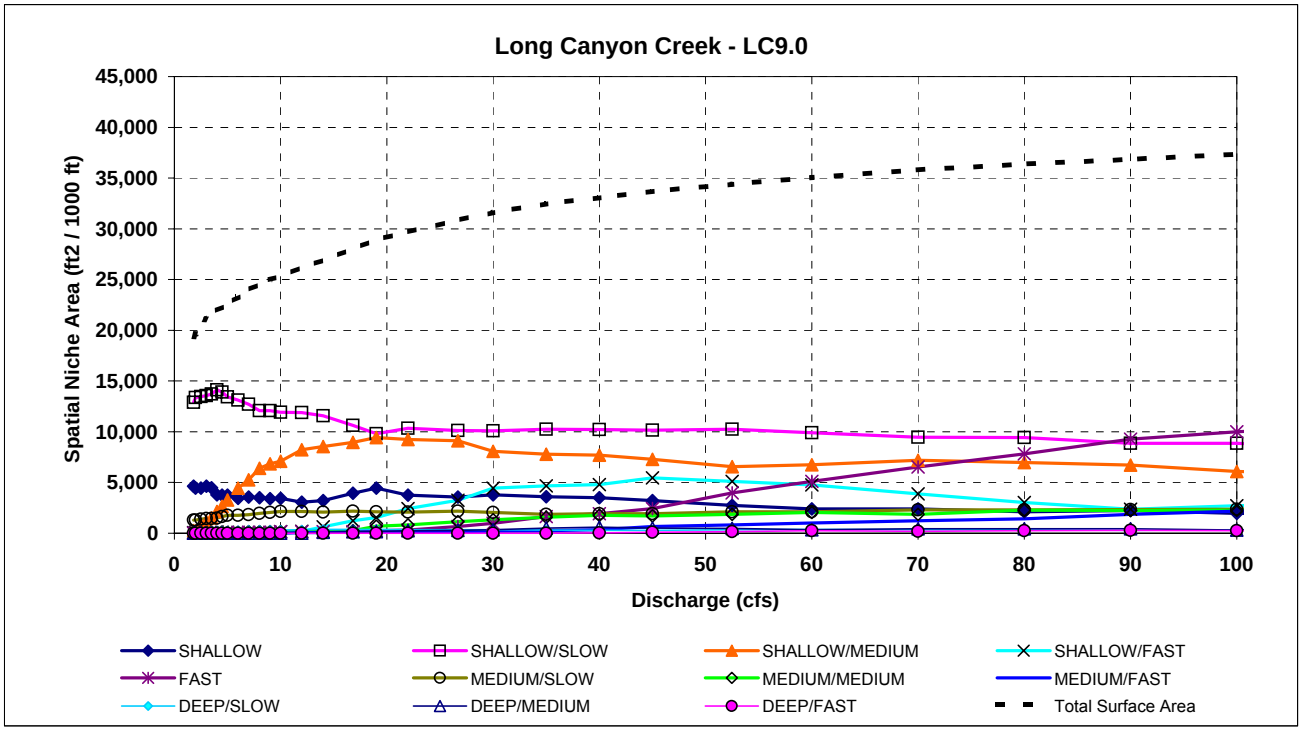
Table 4A. Long Canyon Creek- LC9.0 Weighted Usable Area.

Discharge (cfs)	Weighted Usable Area (ft^2 / 1000 ft)						
	RBT SPAWNING	RBT SPAWNING DEPTH SENS	RBT SM ADULT	RBT SM ADULT DEPTH SENS	RBT AM ADULT VEL SENS	RBT SM JUV	RBT FRY
1.8	633	634	1320	1370	1320	5361	14689
2	706	707	1422	1475	1423	5681	14962
2.5	889	891	1673	1735	1674	6430	15586
3	1075	1077	1912	1983	1913	7104	16115
3.5	1259	1261	2140	2220	2140	7676	16442
4	1440	1443	2363	2452	2363	8194	16690
4.5	1614	1617	2590	2689	2590	8653	16866
5	1776	1780	2810	2919	2810	9043	16955
6	2066	2071	3239	3367	3240	9744	17030
7	2306	2313	3647	3795	3650	10342	17068
8	2494	2504	4021	4187	4030	10829	16970
9	2666	2679	4364	4548	4386	11218	16848
10	2819	2837	4671	4872	4705	11518	16665
12	3064	3094	5235	5467	5280	12046	16376
14	3238	3283	5747	6007	5819	12449	16156
16.8	3409	3476	6422	6716	6540	12848	15790
19	3499	3586	6856	7173	7016	13021	15567
22	3599	3713	7319	7663	7546	13164	15300
26.7	3725	3887	7899	8280	8194	13335	15101
30	3815	4011	8240	8644	8560	13453	14998
35	3935	4181	8621	9055	8978	13522	14846
40	4031	4326	8906	9366	9301	13517	14624
45	4100	4447	9133	9612	9543	13524	14488
52.5	4178	4612	9400	9897	9822	13575	14264
60	4212	4744	9637	10146	10069	13629	14012
70	4135	4795	9857	10377	10315	13627	13640
80	3970	4744	10021	10540	10528	13557	13228
90	3779	4657	10141	10661	10688	13493	12858
100	3565	4537	10249	10769	10827	13416	12549
118.8	3155	4271	10360	10869	10936	13276	11994

Table 4B. Long Canyon Creek- LC9.0 Percent of Maximum Weighted Usable Area.

Discharge (cfs)	Percent of Maximum Weighted Usable Area						
	RBT SPAWNING	RBT SPAWNING DEPTH SENS	RBT SM ADULT	RBT SM ADULT DEPTH SENS	RBT AM ADULT VEL SENS	RBT SM JUV	RBT FRY
1.8	15	13	13	13	12	39	86
2	17	15	14	14	13	42	88
2.5	21	19	16	16	15	47	91
3	26	22	18	18	17	52	94
3.5	30	26	21	20	20	56	96
4	34	30	23	23	22	60	98
4.5	38	34	25	25	24	63	99
5	42	37	27	27	26	66	99
6	49	43	31	31	30	71	100
7	55	48	35	35	33	76	100
8	59	52	39	39	37	79	99
9	63	56	42	42	40	82	99
10	67	59	45	45	43	85	98
12	73	65	51	50	48	88	96
14	77	68	55	55	53	91	95
16.8	81	73	62	62	60	94	93
19	83	75	66	66	64	96	91
22	85	77	71	70	69	97	90
26.7	88	81	76	76	75	98	88
30	91	84	80	80	78	99	88
35	93	87	83	83	82	99	87
40	96	90	86	86	85	99	86
45	97	93	88	88	87	99	85
52.5	99	96	91	91	90	100	84
60	100	99	93	93	92	100	82
70	98	100	95	95	94	100	80
80	94	99	97	97	96	99	78
90	90	97	98	98	98	99	75
100	85	95	99	99	99	98	74
118.8	75	89	100	100	100	97	70

Figure 11. Long Canyon Creek - LC9.0 Spatial Niche Area by Individual Niche (top) and by Cumulative Area (bottom).



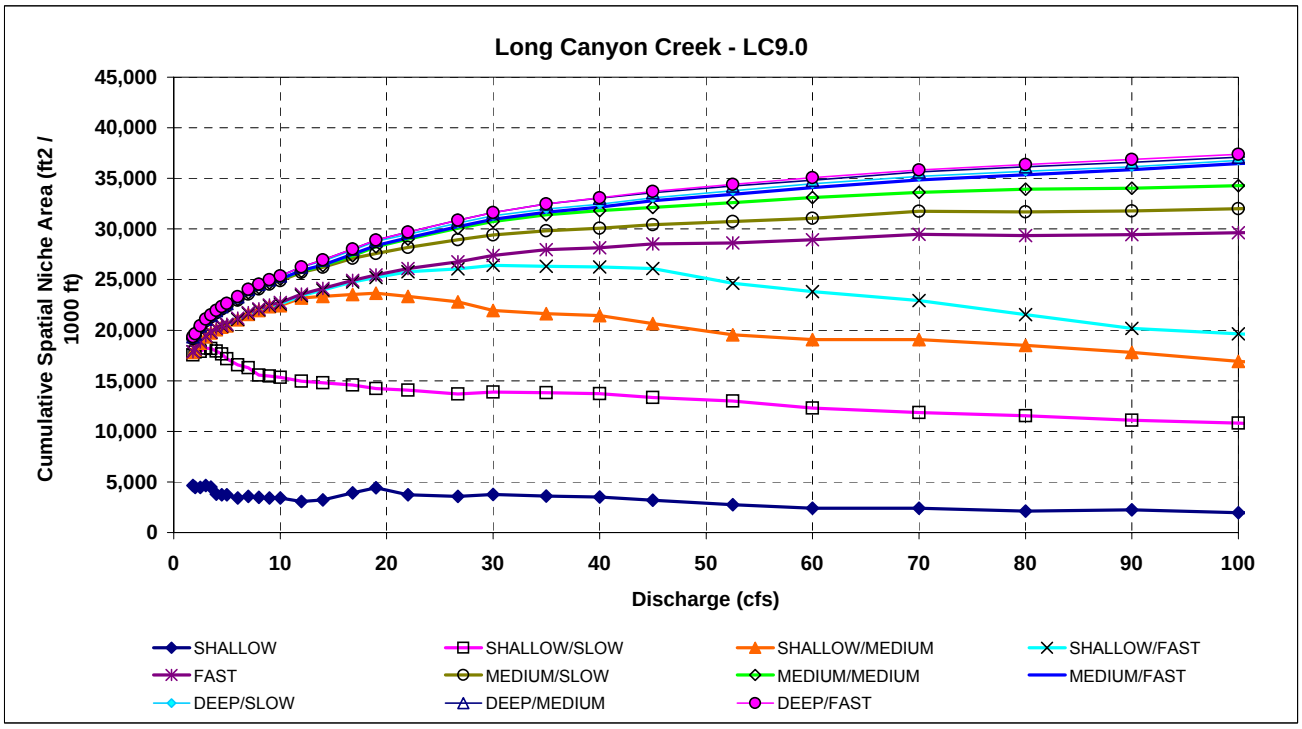
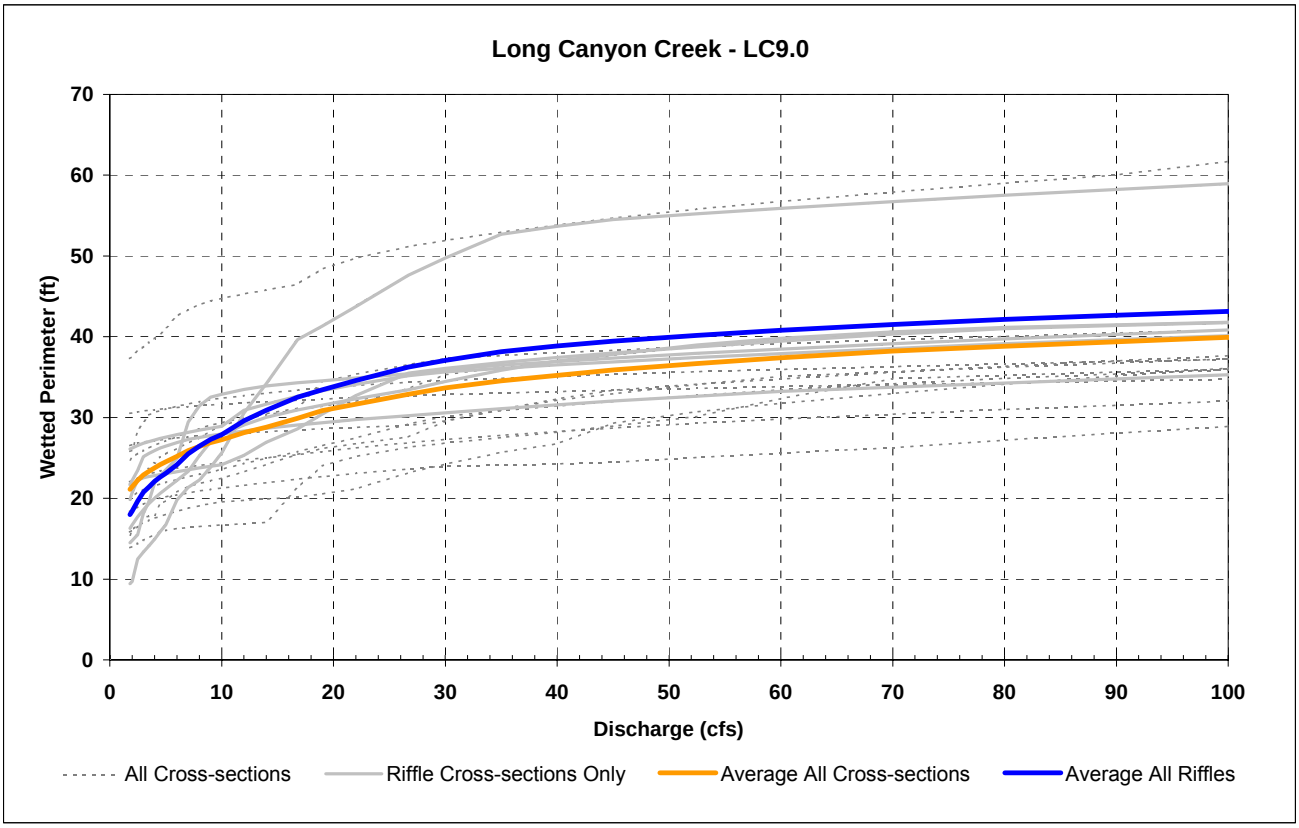


Figure 12. Long Canyon Creek - LC9.0 Wetted Perimeter.



Middle Fork of the American River MF44.7

Figure 13. Middle Fork of the American River - MF44.7 Weighted Usable Area (top) and Percent of Maximum Weighted Usable Area (bottom).

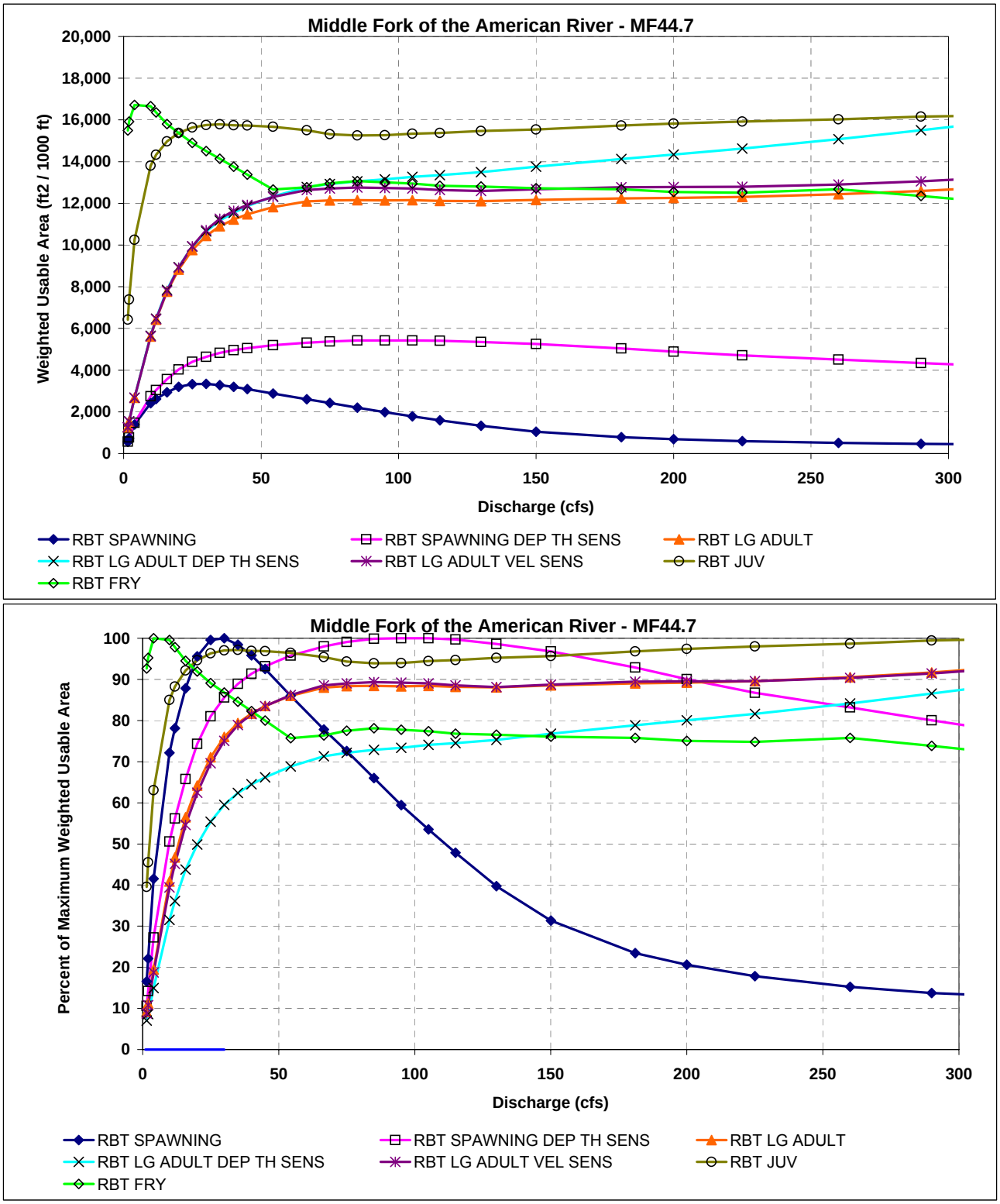


Table 5A. Middle Fork of the American River - MF44.7 Weighted Usable Area.

Discharge (cfs)	Weighted Usable Area (ft^2 / 1000 ft)						
	RBT SPAWNING	RBT SPAWNING DEP TH SENS	RBT LG ADULT	RBT LG ADULT DEP TH SENS	RBT LG ADULT VEL SENS	RBT JUV	RBT FRY
1.5	554	576	1255	1258	1256	6423	15496
2	739	772	1538	1542	1538	7389	15926
4	1388	1478	2671	2681	2676	10246	16722
9.8	2411	2744	5611	5650	5630	13807	16653
11.8	2610	3046	6420	6471	6443	14334	16360
15.8	2934	3568	7761	7843	7801	14974	15804
20	3193	4032	8820	8937	8922	15370	15376
25	3326	4395	9761	9923	9944	15642	14901
30	3340	4642	10441	10659	10715	15760	14509
35	3287	4822	10903	11174	11266	15785	14139
40	3201	4958	11225	11552	11643	15748	13762
45	3091	5054	11475	11863	11921	15735	13373
54.4	2873	5195	11816	12334	12311	15669	12663
66.6	2599	5317	12091	12779	12641	15504	12772
75	2425	5375	12141	12931	12711	15319	12957
85	2204	5417	12151	13056	12755	15251	13065
95	1986	5424	12134	13148	12739	15267	13003
105	1789	5423	12148	13276	12716	15345	12943
115	1599	5407	12115	13349	12643	15378	12840
130	1326	5350	12102	13495	12586	15466	12801
150	1048	5252	12164	13759	12673	15536	12718
181	783	5039	12232	14127	12771	15728	12670
200	689	4884	12259	14342	12778	15825	12544
225	595	4703	12309	14627	12795	15917	12506
260	509	4512	12435	15080	12899	16025	12673
290	459	4343	12597	15505	13060	16158	12351
330	424	4126	12864	16099	13324	16244	11888
370	400	3916	13156	16689	13596	16188	11472
420	372	3688	13465	17343	13947	15988	10879
470	354	3498	13739	17917	14280	15745	10201

Table 5B. Middle Fork of the American River - MF44.7 Percent of Maximum Weighted Usable Area.

Discharge (cfs)	Percent of Maximum Weighted Usable Area						
	RBT SPAWNING	RBT SPAWNING DEP TH SENS	RBT LG ADULT	RBT LG ADULT DEP TH SENS	RBT LG ADULT VEL SENS	RBT JUV	RBT FRY
1.5	17	11	9	7	9	40	93
2	22	14	11	9	11	45	95
4	42	27	19	15	19	63	100
9.8	72	51	41	32	39	85	100
11.8	78	56	47	36	45	88	98
15.8	88	66	56	44	55	92	95
20	96	74	64	50	62	95	92
25	100	81	71	55	70	96	89
30	100	86	76	59	75	97	87
35	98	89	79	62	79	97	85
40	96	91	82	64	82	97	82
45	93	93	84	66	83	97	80
54.4	86	96	86	69	86	96	76
66.6	78	98	88	71	89	95	76
75	73	99	88	72	89	94	77
85	66	100	88	73	89	94	78
95	59	100	88	73	89	94	78
105	54	100	88	74	89	94	77
115	48	100	88	75	89	95	77
130	40	99	88	75	88	95	77
150	31	97	89	77	89	96	76
181	23	93	89	79	89	97	76
200	21	90	89	80	89	97	75
225	18	87	90	82	90	98	75
260	15	83	91	84	90	99	76
290	14	80	92	87	91	99	74
330	13	76	94	90	93	100	71
370	12	72	96	93	95	100	69
420	11	68	98	97	98	98	65
470	11	65	100	100	100	97	61

Figure 14. Middle Fork of the American River - MF44.7 Spatial Niche Area by Individual Niche (top) and by Cumulative Area (bottom).

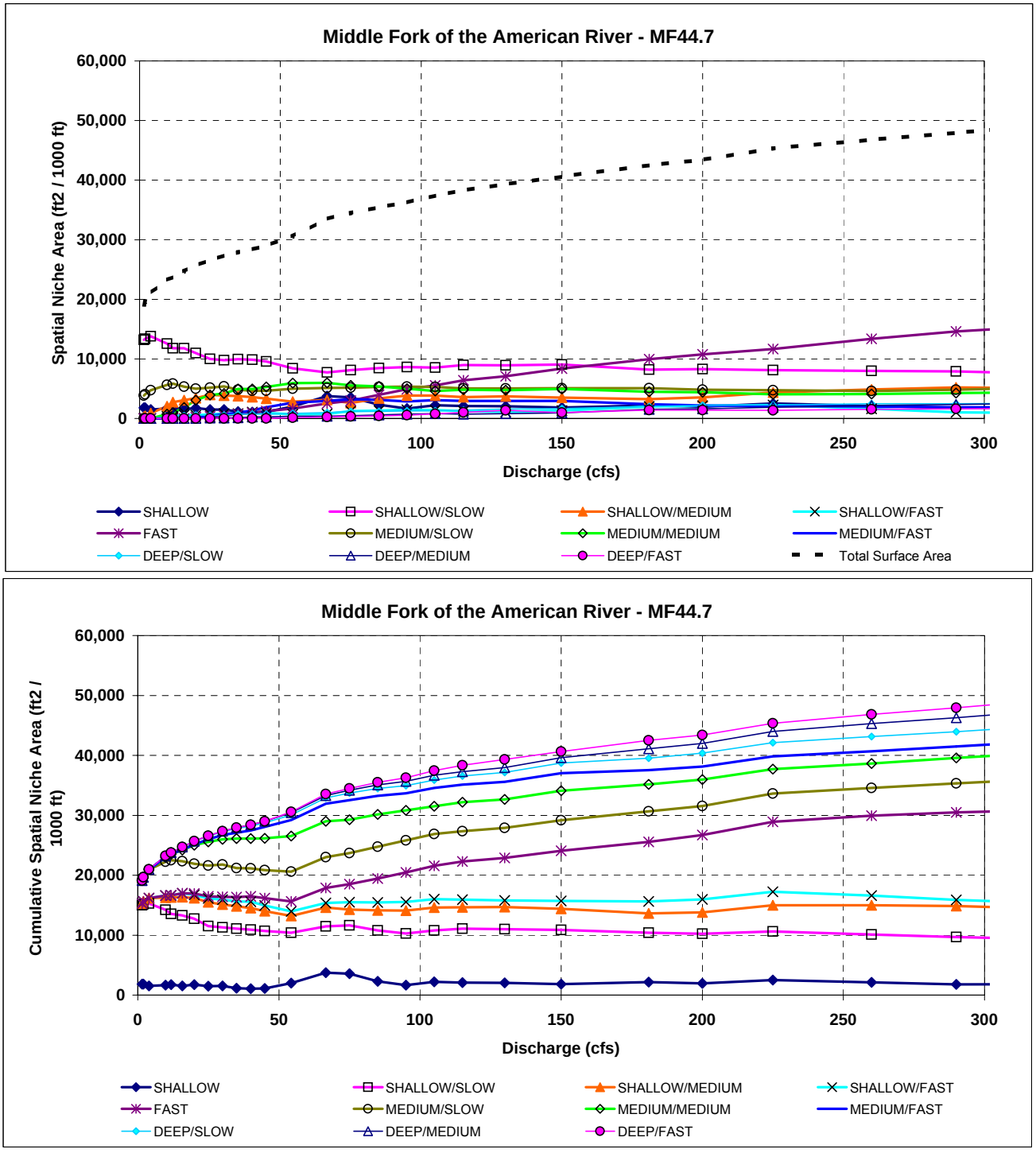
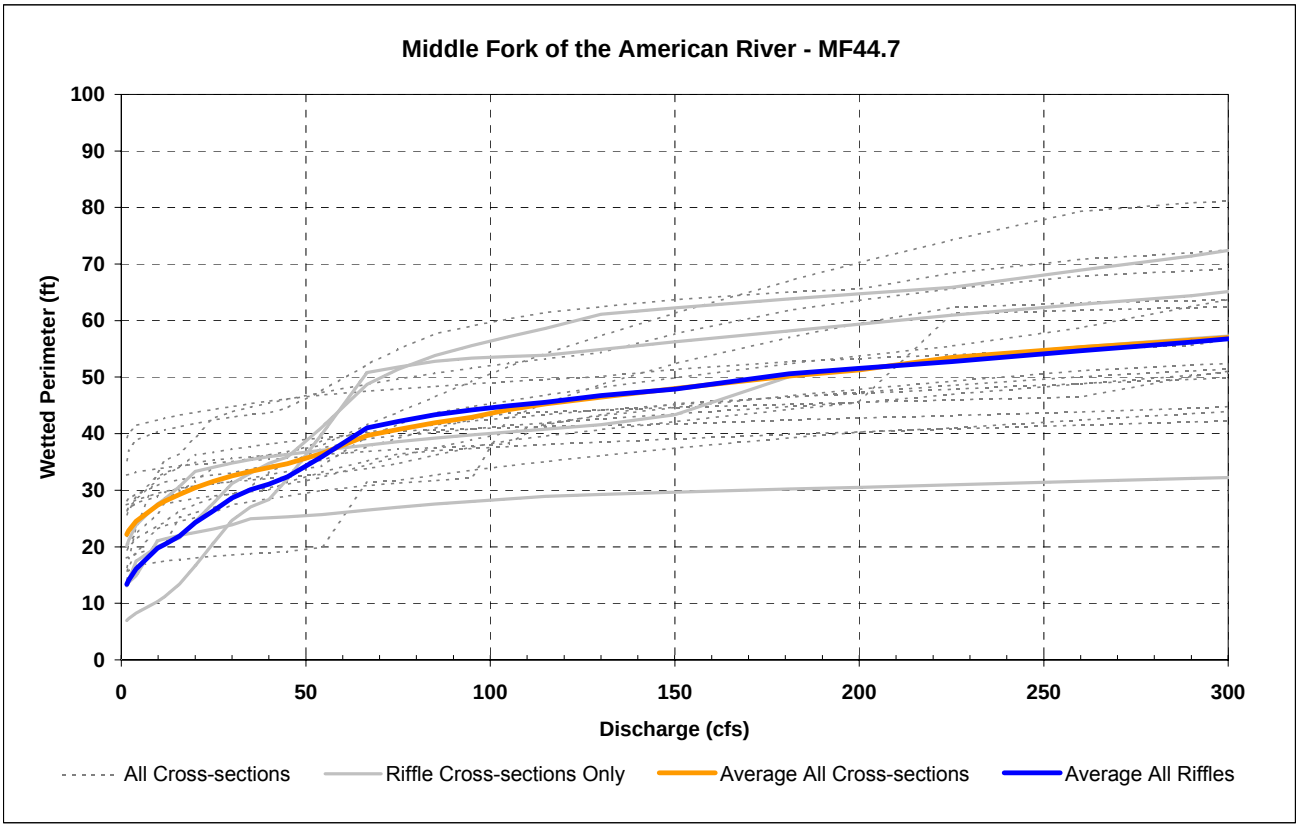
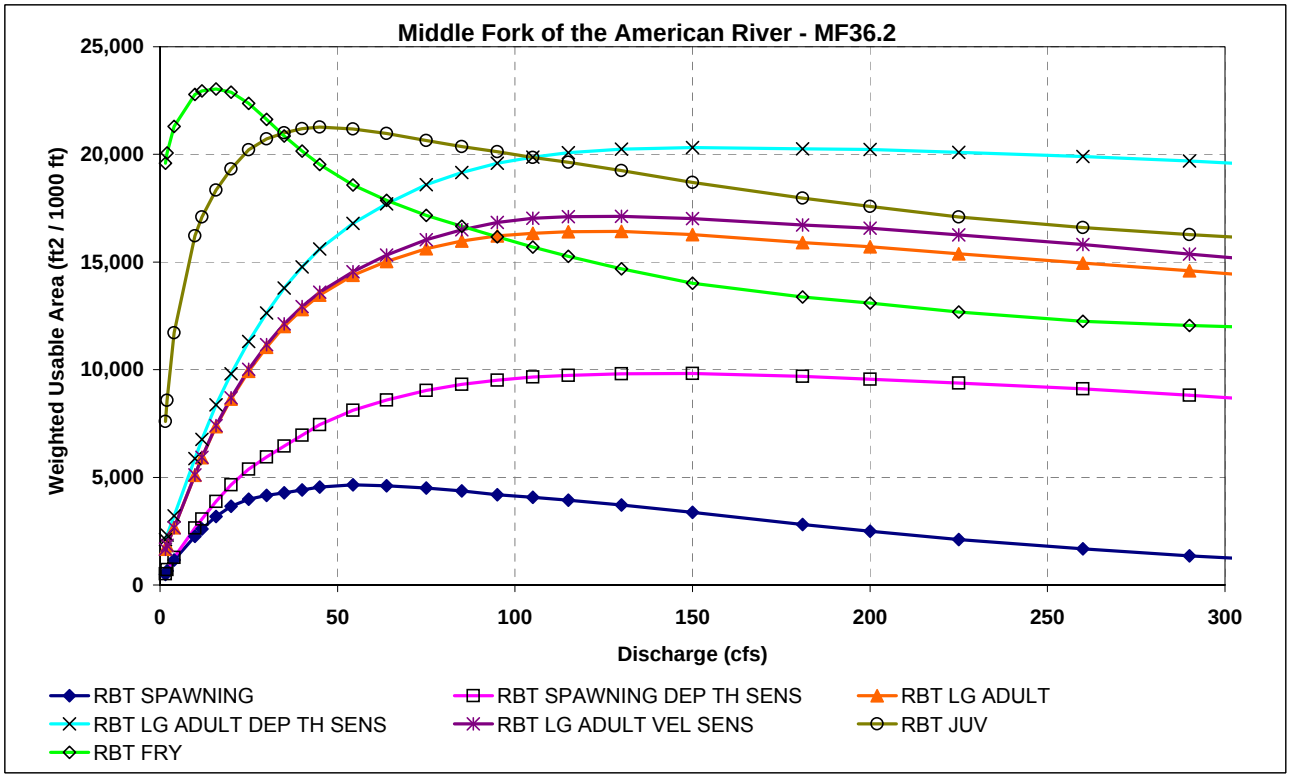


Figure 15. Middle Fork of the American River - MF44.7 Wetted Perimeter.



Middle Fork of the American River MF36.2

Figure 16. Middle Fork of the American River - MF36.2 Weighted Usable Area (top) and Percent of Maximum Weighted Usable Area (bottom).



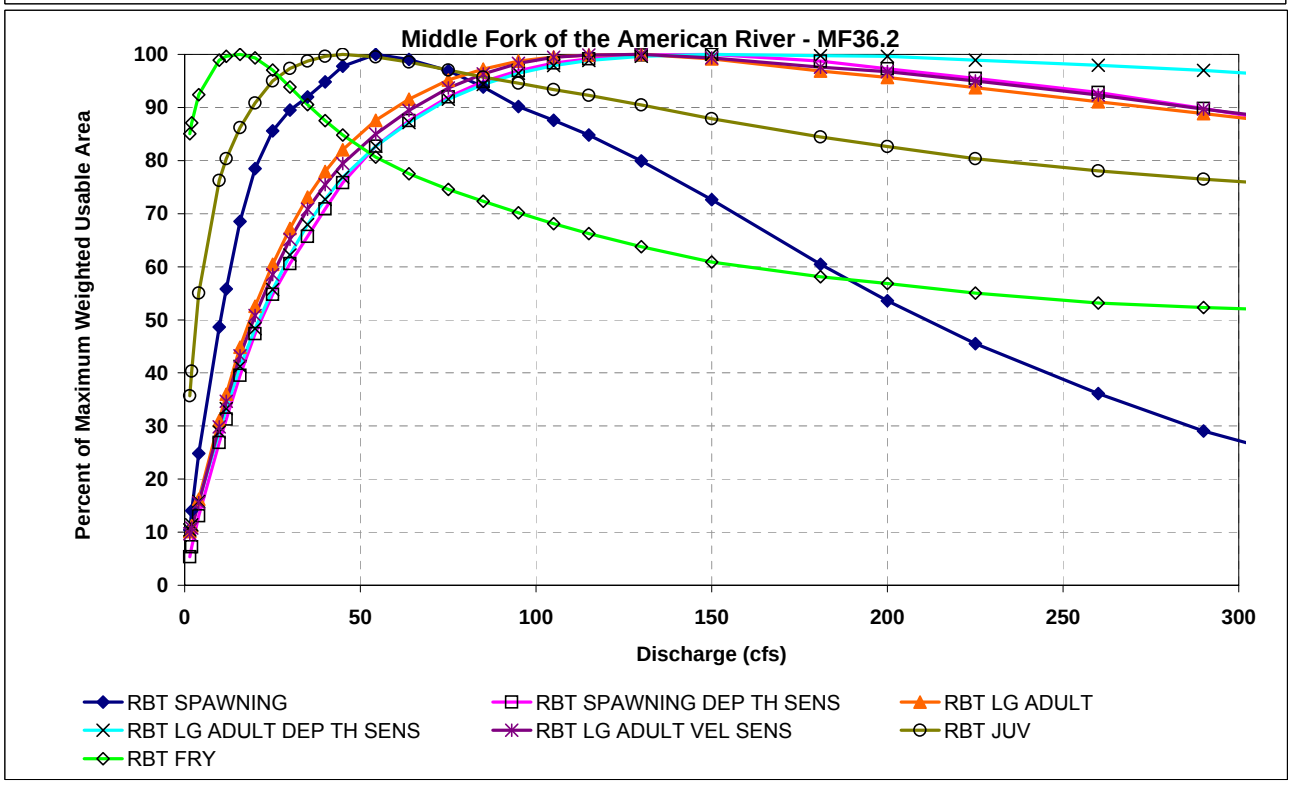


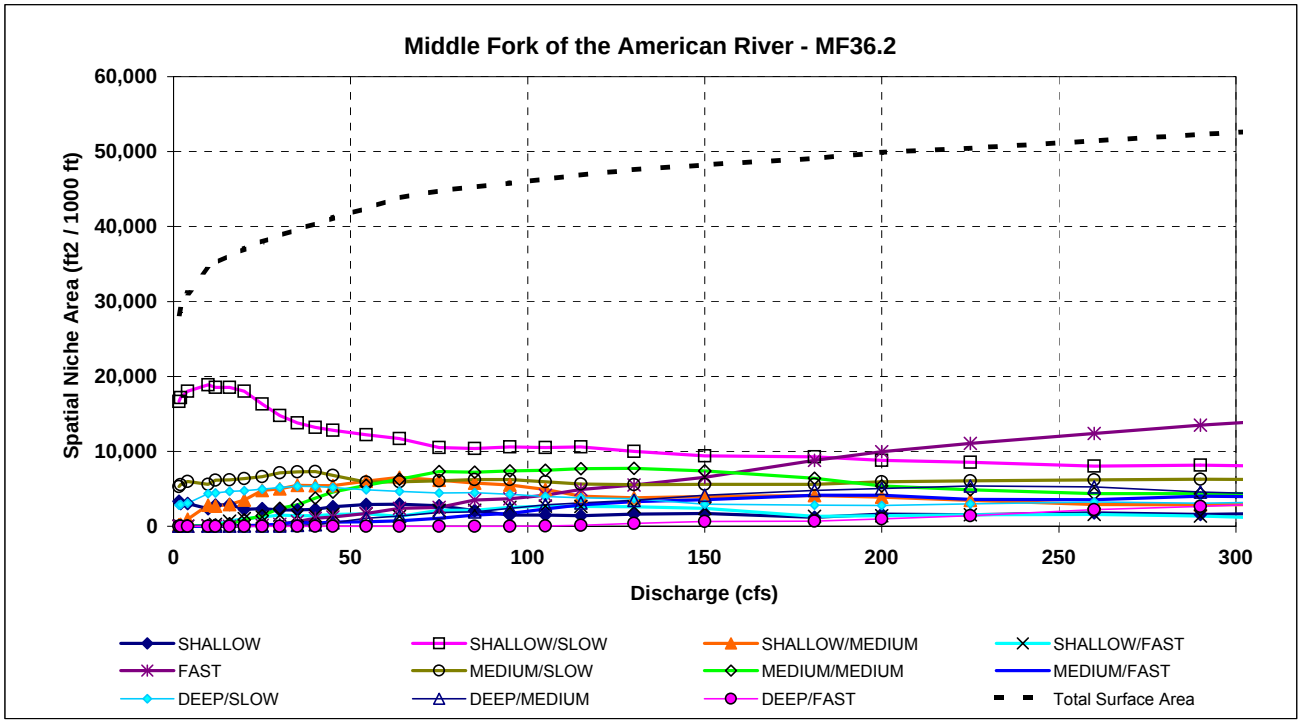
Table 6A. Middle Fork of the American River - MF36.2 Weighted Usable Area.

Discharge (cfs)	Weighted Usable Area (ft^2 / 1000 ft)						
	RBT SPAWNING	RBT SPAWNING DEP TH SENS	RBT LG ADULT	RBT LG ADULT DEP TH SENS	RBT LG ADULT VEL SENS	RBT JUV	RBT FRY
1.5	485	526	1662	2117	1662	7591	19597
2	654	711	1845	2320	1845	8583	20063
4	1155	1283	2663	3214	2663	11705	21294
9.8	2262	2639	5099	5871	5106	16218	22783
11.8	2594	3069	5911	6761	5931	17091	22951
15.8	3186	3882	7360	8369	7403	18343	23037
20	3650	4655	8635	9815	8699	19326	22889
25	3981	5381	9926	11315	10021	20214	22363
30	4161	5950	11042	12637	11159	20715	21621
35	4276	6453	12008	13799	12126	21002	20851
40	4409	6958	12799	14769	12928	21196	20158
45	4545	7445	13473	15606	13606	21275	19534
54.4	4649	8122	14384	16798	14556	21178	18579
63.8	4605	8593	15033	17707	15320	20966	17860
75	4507	9031	15628	18594	16039	20640	17173
85	4364	9319	15972	19160	16494	20366	16658
95	4193	9515	16210	19588	16841	20126	16167
105	4071	9662	16340	19879	17037	19862	15695
115	3942	9739	16405	20074	17100	19630	15265
130	3716	9805	16423	20239	17125	19253	14686
150	3376	9819	16279	20313	17013	18695	14019
181	2810	9693	15909	20264	16717	17964	13381
200	2492	9556	15710	20236	16573	17583	13096
225	2116	9374	15390	20098	16266	17093	12673
260	1680	9116	14958	19896	15810	16601	12244
290	1350	8821	14590	19699	15362	16278	12053
330	1016	8386	14098	19357	14808	15903	11863
370	798	7974	13686	19052	14363	15566	11759
420	616	7499	13226	18607	13901	15241	11558
470	503	7065	12902	18249	13564	15091	11295

Table 6B. Middle Fork of the American River - MF36.2 Percent of Maximum Weighted Usable Area.

Discharge (cfs)	Percent of Maximum Weighted Usable Area						
	RBT SPAWNING	RBT SPAWNING DEP TH SENS	RBT LG ADULT	RBT LG ADULT DEP TH SENS	RBT LG ADULT VEL SENS	RBT JUV	RBT FRY
1.5	10	5	10	10	10	36	85
2	14	7	11	11	11	40	87
4	25	13	16	16	16	55	92
9.8	49	27	31	29	30	76	99
11.8	56	31	36	33	35	80	100
15.8	69	40	45	41	43	86	100
20	79	47	53	48	51	91	99
25	86	55	60	56	59	95	97
30	89	61	67	62	65	97	94
35	92	66	73	68	71	99	91
40	95	71	78	73	75	100	87
45	98	76	82	77	79	100	85
54.4	100	83	88	83	85	100	81
63.8	99	88	92	87	89	99	78
75	97	92	95	92	94	97	75
85	94	95	97	94	96	96	72
95	90	97	99	96	98	95	70
105	88	98	99	98	99	93	68
115	85	99	100	99	100	92	66
130	80	100	100	100	100	90	64
150	73	100	99	100	99	88	61
181	60	99	97	100	98	84	58
200	54	97	96	100	97	83	57
225	46	95	94	99	95	80	55
260	36	93	91	98	92	78	53
290	29	90	89	97	90	77	52
330	22	85	86	95	86	75	51
370	17	81	83	94	84	73	51
420	13	76	81	92	81	72	50
470	11	72	79	90	79	71	49

Figure 17. Middle Fork of the American River - MF36.2 Spatial Niche Area by Individual Niche (top) and by Cumulative Area (bottom).



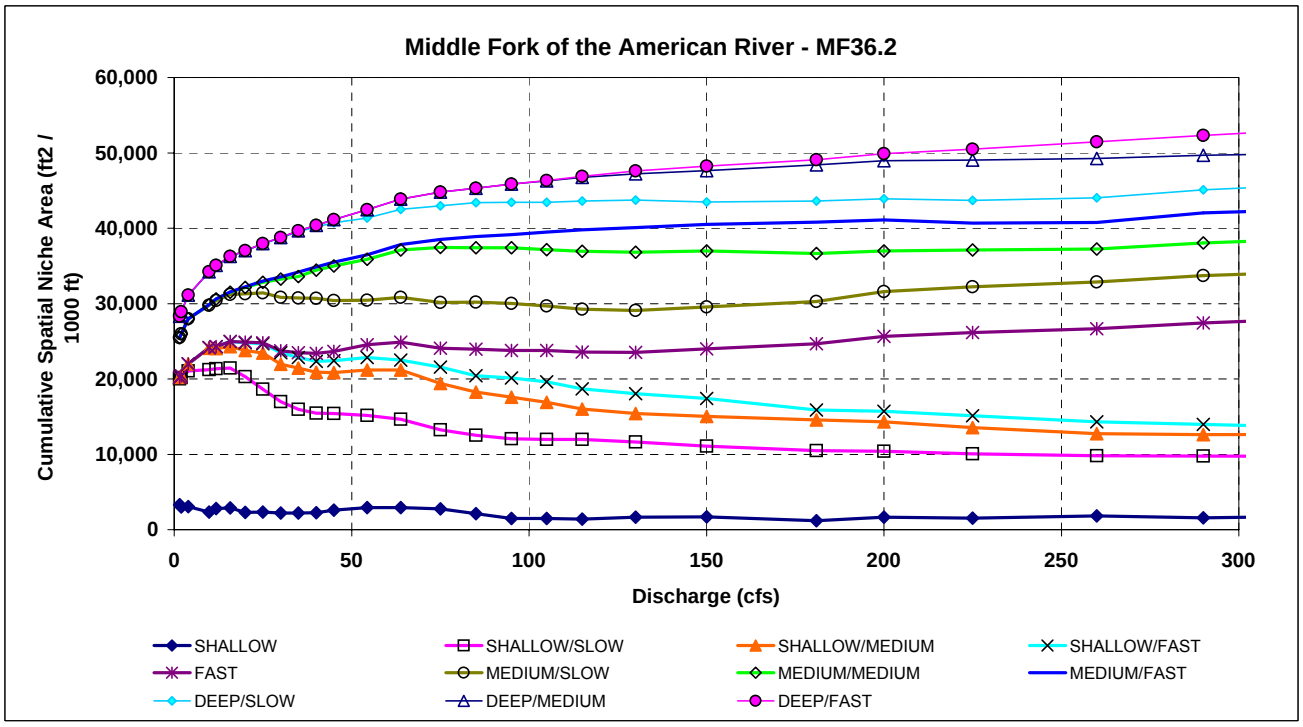
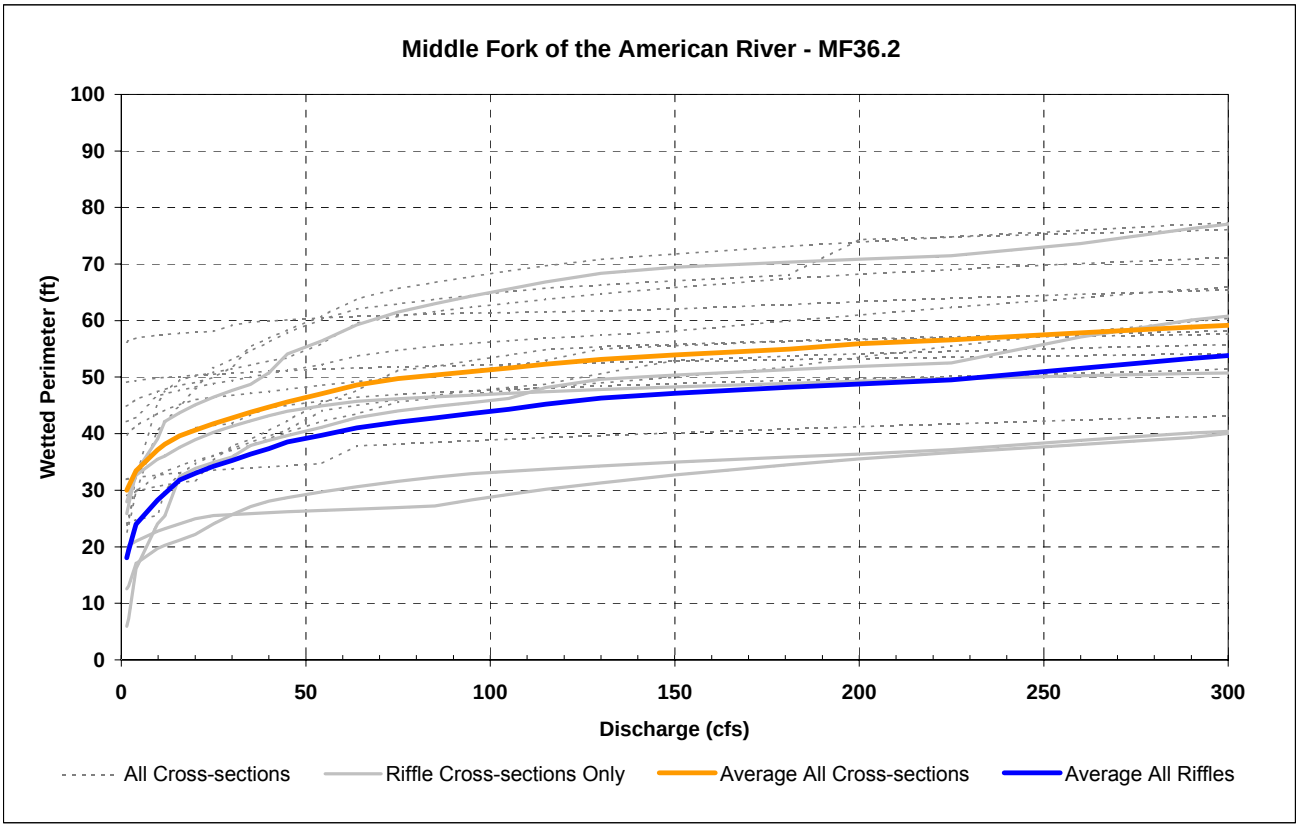
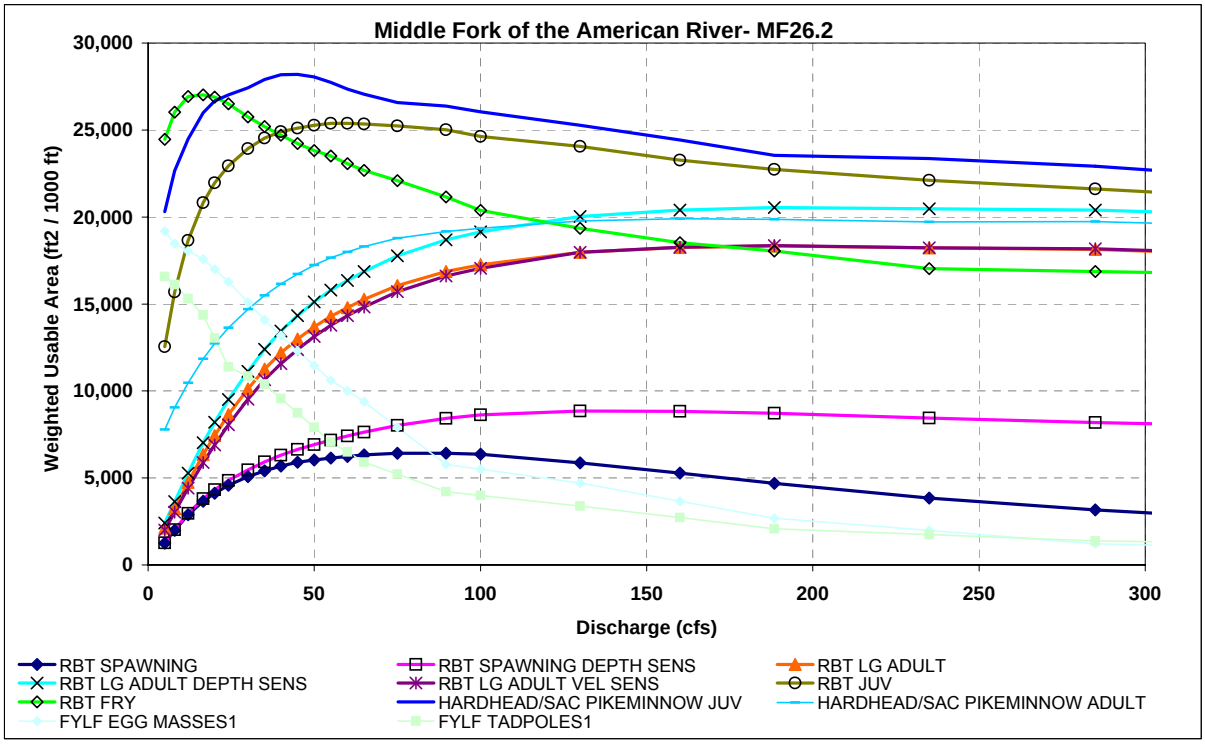


Figure 18. Middle Fork of the American River - MF36.2 Wetted Perimeter.



Middle Fork of the American River 26.2

Figure 19. Middle Fork of the American River- MF26.2 Weighted Usable Area (top) and Percent of Maximum Weighted Usable Area (bottom).



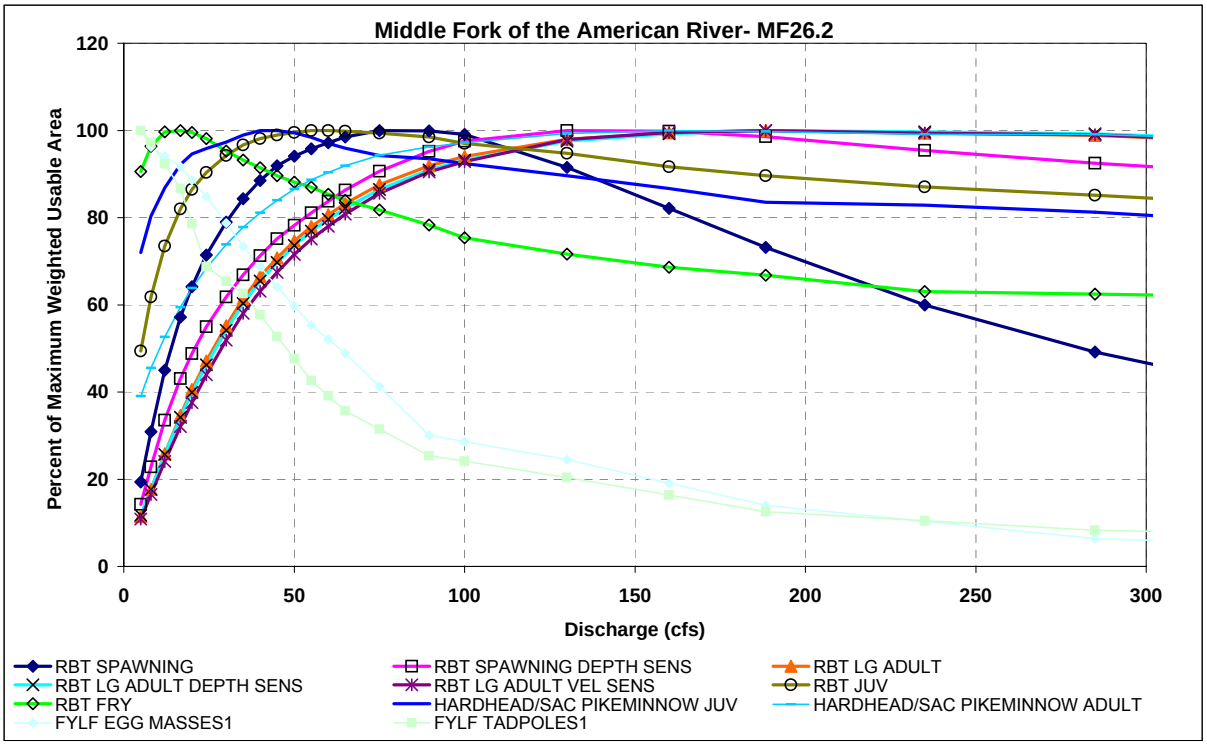


Table 7A. Middle Fork of the American River- MF26.2 Weighted Usable Area.

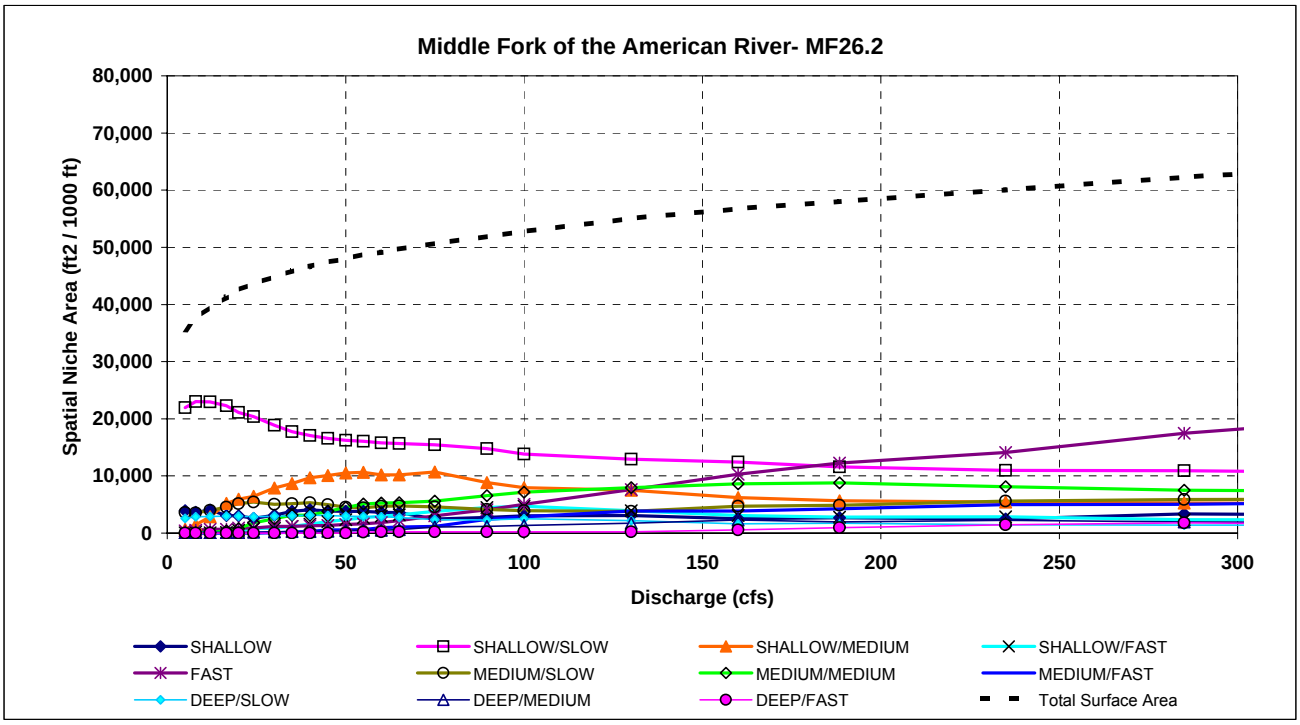
Discharge (cfs)	Weighted Usable Area (ft^2 / 1000 ft)										
	RBT SPAWNING	RBT SPAWNING DEPTH SENS	RBT LG ADULT	RBT LG ADULT DEPTH SENS	RBT LG ADULT VEL SENS	RBT JUV	RBT FRY	HARDHEAD/SAC PIKEMINNOW JUV	HARDHEAD/SAC PIKEMINNOW ADULT	FYLF EGG MASSES[1]	FYLF TADPOLES[1]
5	1245	1261	2106	2406	1997	12537	24464	20302	7772	19183	16582
8	1982	2017	3239	3637	3028	15684	26032	22655	9054	18458	16120
12	2889	2965	4743	5271	4411	18651	26919	24483	10471	18050	15306
16.6	3669	3810	6355	7026	5882	20819	27017	25991	11842	17580	14370
20	4115	4314	7440	8200	6897	21954	26897	26674	12719	16998	13036
24.2	4584	4862	8636	9507	8062	22936	26512	27027	13627	16280	11387
30	5069	5464	10116	11131	9526	23928	25745	27427	14699	15101	10850
35	5411	5916	11263	12397	10655	24539	25191	27899	15493	14084	10386
40	5680	6303	12197	13446	11577	24903	24704	28187	16151	13196	9560
45	5897	6645	12978	14327	12371	25116	24221	28191	16719	12308	8734
50	6038	6923	13690	15125	13126	25266	23823	28042	17226	11465	7903
55	6148	7171	14297	15803	13774	25377	23502	27742	17657	10622	7071
60	6239	7408	14796	16355	14320	25386	23066	27357	17988	9998	6492
65	6319	7637	15261	16869	14829	25343	22679	27052	18298	9374	5912
75	6418	8020	16056	17763	15706	25232	22082	26571	18783	7910	5222
89.6	6411	8417	16859	18683	16609	25009	21154	26368	19160	5773	4213
100	6359	8626	17244	19146	17042	24634	20373	26050	19346	5497	4000
130	5874	8845	17975	20038	17962	24063	19352	25268	19766	4701	3384
160	5272	8827	18239	20394	18260	23264	18531	24432	19911	3667	2716
188.4	4697	8718	18340	20545	18350	22742	18051	23548	19865	2688	2084
235	3849	8441	18230	20471	18234	22101	17029	23358	19722	1981	1741
285	3157	8180	18134	20392	18166	21614	16869	22912	19731	1223	1373
335	2622	7974	17829	20102	17875	21093	16709	22258	19482	987	1259
385	2224	7750	17433	19691	17459	20674	16344	22313	19165	752	1146
460	1717	7312	16989	19239	16910	20171	15630	22104	18925	622	1031
535	1365	6836	16559	18844	16447	19629	14960	21660	18757	492	916
635	1044	6292	16079	18436	15999	18863	14479	21279	18623	431	838
735	827	5862	15663	18174	15570	18226	14002	20776	18575	371	759
835	688	5461	15188	17874	15078	17776	13196	20429	18418	364	712
935	582	5083	14687	17586	14591	17275	12422	19965	18314	357	665

[1]Interpolated values in gray.

Table 7B. Middle Fork of the American River- MF26.2 Percent of Maximum Weighted Usable Area.

Discharge (cfs)	Percent of Maximum Weighted Usable Area										
	RBT SPAWNING	RBT SPAWNING DEPTH SENS	RBT LG ADULT	RBT LG ADULT DEPTH SENS	RBT LG ADULT VEL SENS	RBT JUV	RBT FRY	HARDHEAD/SAC PIKEMINNOW JUV	HARDHEAD/SAC PIKEMINNOW ADULT	FYLF EGG MASSES	FYLF TADPOLES
5	19	14	11	12	11	49	91	72	39	100	100
8	31	23	18	18	16	62	96	80	45	96	97
12	45	34	26	26	24	73	100	87	53	94	92
16.6	57	43	35	34	32	82	100	92	59	92	87
20	64	49	41	40	38	86	100	95	64	89	79
24.2	71	55	47	46	44	90	98	96	68	85	69
30	79	62	55	54	52	94	95	97	74	79	65
35	84	67	61	60	58	97	93	99	78	73	63
40	88	71	67	65	63	98	91	100	81	69	58
45	92	75	71	70	67	99	90	100	84	64	53
50	94	78	75	74	72	100	88	99	87	60	48
55	96	81	78	77	75	100	87	98	89	55	43
60	97	84	81	80	78	100	85	97	90	52	39
65	98	86	83	82	81	100	84	96	92	49	36
75	100	91	88	86	86	99	82	94	94	41	31
89.6	100	95	92	91	91	99	78	94	96	30	25
100	99	98	94	93	93	97	75	92	97	29	24
130	92	100	98	98	98	95	72	90	99	25	20
160	82	100	99	99	100	92	69	87	100	19	16
188.4	73	99	100	100	100	90	67	84	100	14	13
235	60	95	99	100	99	87	63	83	99	10	11
285	49	92	99	99	99	85	62	81	99	6	8
335	41	90	97	98	97	83	62	79	98	5	8
385	35	88	95	96	95	81	60	79	96	4	7
460	27	83	93	94	92	79	58	78	95	3	6
535	21	77	90	92	90	77	55	77	94	3	6
635	16	71	88	90	87	74	54	75	94	2	5
735	13	66	85	88	85	72	52	74	93	2	5
835	11	62	83	87	82	70	49	72	93	2	4
935	9	57	80	86	80	68	46	71	92	2	4

Figure 20. Middle Fork of the American River- MF26.2 Spatial Niche Area by Individual Niche (top) and by Cumulative Area (bottom).



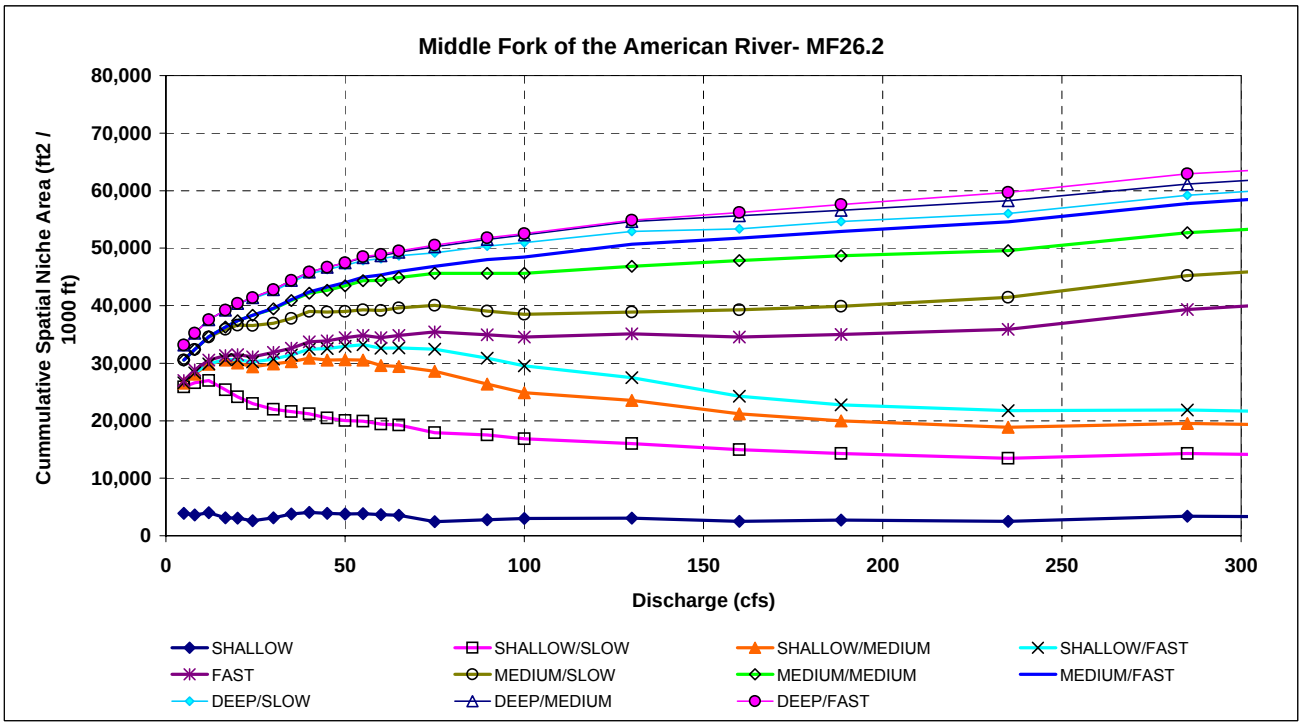
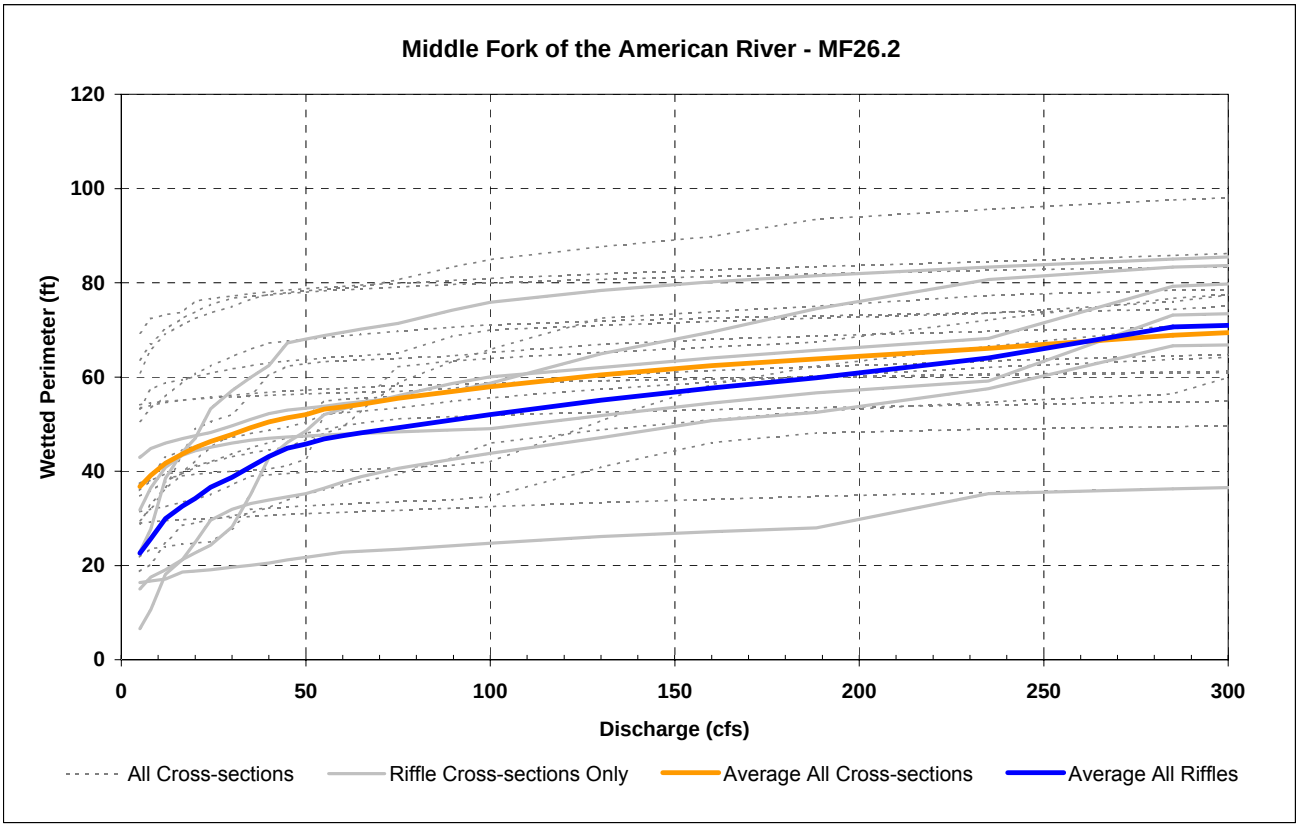
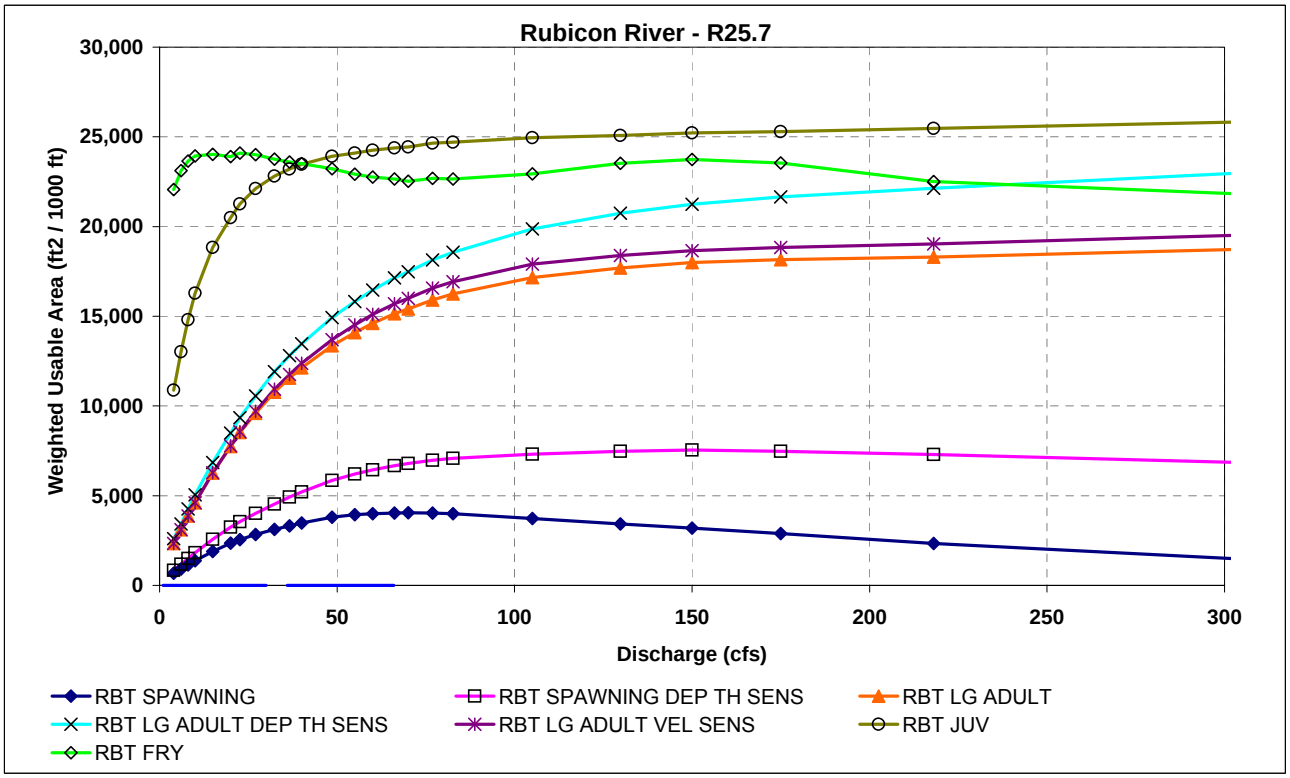


Figure 21. Middle Fork of the American River - MF26.2 Wetted Perimeter.



Rubicon River R25.7

Figure 22. Rubicon River - R25.7 Weighted Usable Area (top) and Percent of Maximum Weighted Usable Area (bottom).



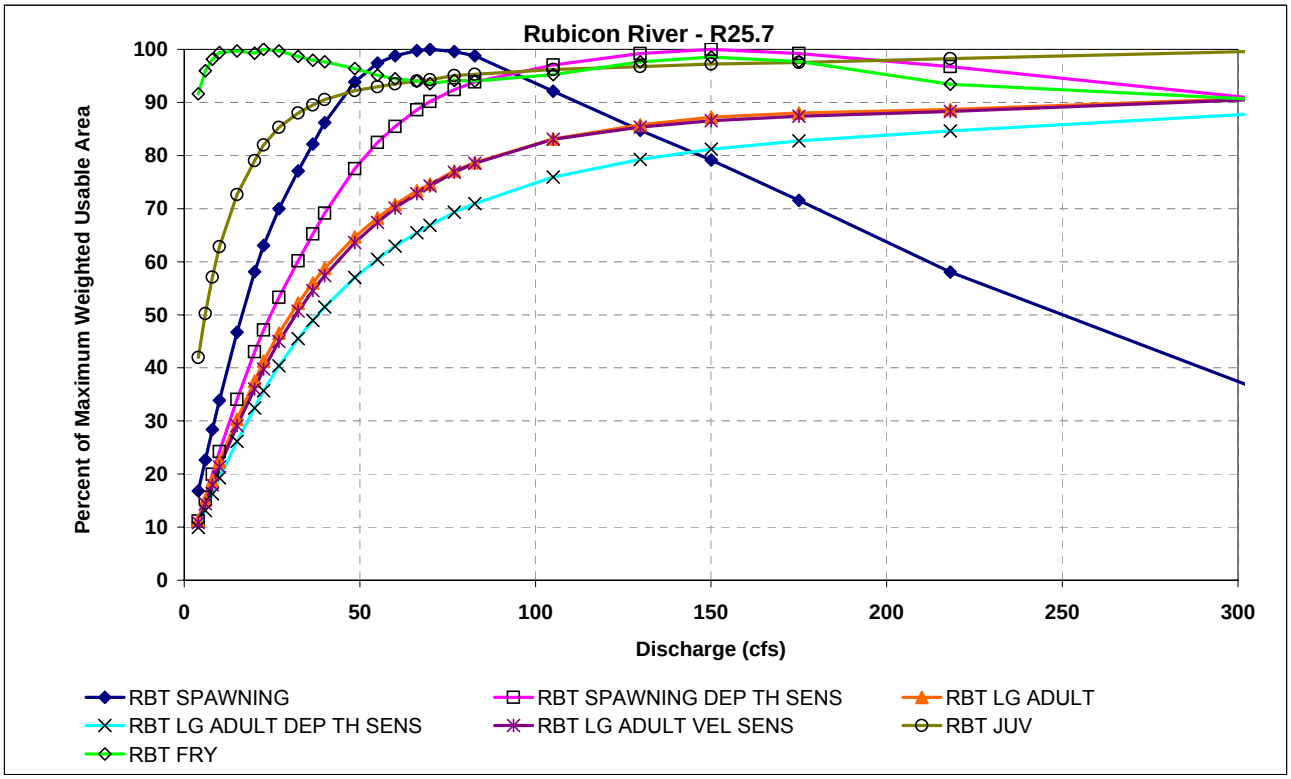


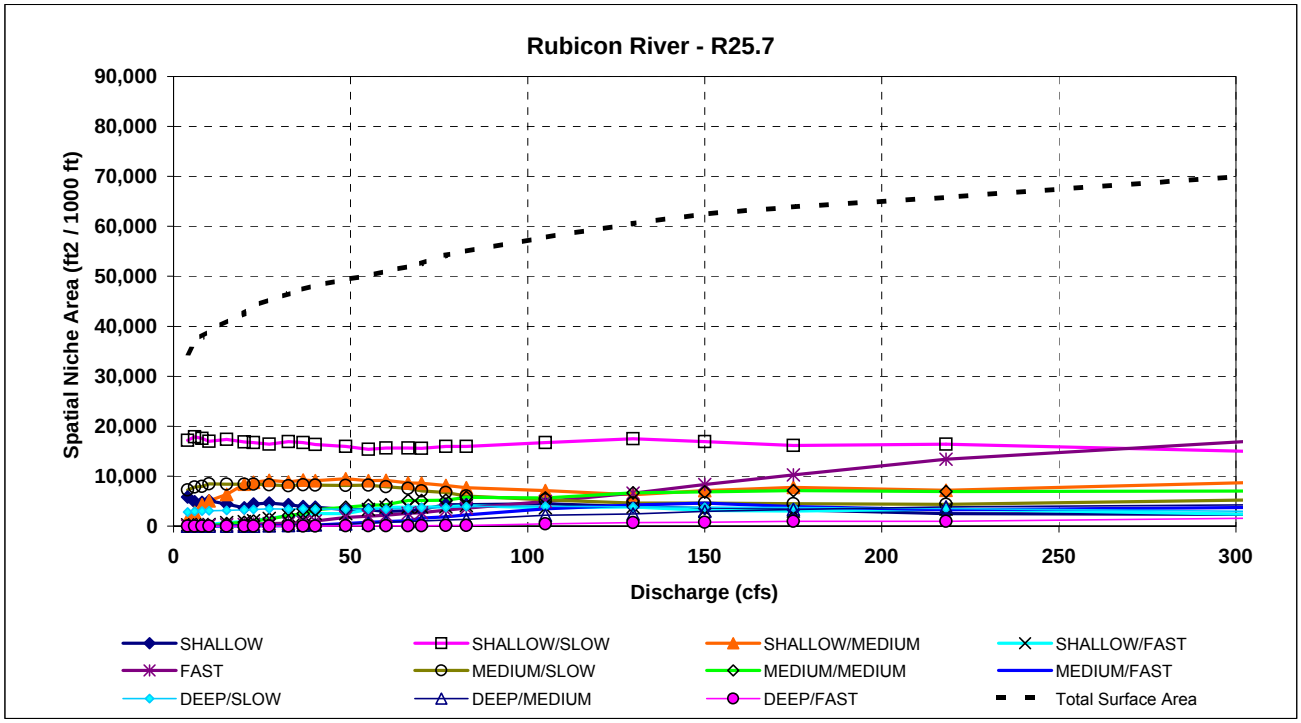
Table 8A. Rubicon River - R25.7 Weighted Usable Area.

Discharge (cfs)	Weighted Usable Area (ft^2 / 1000 ft)						
	RBT SPAWNING	RBT SPAWNING DEP TH SENS	RBT LG ADULT	RBT LG ADULT DEP TH SENS	RBT LG ADULT VEL SENS	RBT JUV	RBT FRY
4	679	841	2336	2605	2336	10873	22064
6	917	1176	3104	3431	3105	13020	23118
8	1146	1504	3871	4256	3871	14801	23643
10	1369	1824	4598	5041	4601	16284	23941
15	1887	2569	6262	6850	6275	18836	24022
20	2349	3244	7740	8482	7774	20488	23908
22.6	2548	3553	8517	9341	8569	21262	24089
27	2828	4018	9603	10567	9696	22120	24014
32.4	3116	4533	10776	11909	10928	22815	23763
36.6	3321	4917	11553	12808	11756	23208	23592
40	3483	5213	12126	13474	12370	23470	23515
48.6	3792	5842	13351	14927	13705	23914	23215
55	3935	6216	14085	15824	14520	24103	22914
60	3992	6444	14609	16470	15108	24251	22758
66.2	4032	6679	15135	17133	15698	24387	22646
70	4041	6795	15406	17485	16005	24443	22534
76.9	4025	6965	15913	18133	16569	24655	22679
82.7	3991	7073	16240	18570	16923	24709	22650
105	3721	7314	17149	19867	17905	24948	22935
129.8	3424	7477	17698	20735	18394	25083	23529
150	3199	7538	17998	21246	18659	25217	23734
175	2892	7480	18160	21654	18831	25283	23542
218.1	2345	7292	18294	22142	19033	25475	22510
325	1258	6739	18836	23189	19632	25918	21657
425	698	6193	19263	23832	20264	25919	20577
525	394	5770	19886	24602	20893	25932	20373
625	247	5437	20291	25147	21349	25532	19959
725	191	5145	20556	25586	21552	25225	19277
825	166	4829	20639	25907	21545	24777	18088
925	147	4537	20638	26166	21476	24353	16820

Table 8B. Rubicon River - R25.7 Percent of Maximum Weighted Usable Area.

Discharge (cfs)	Percent of Maximum Weighted Usable Area						
	RBT SPAWNING	RBT SPAWNING DEP TH SENS	RBT LG ADULT	RBT LG ADULT DEP TH SENS	RBT LG ADULT VEL SENS	RBT JUV	RBT FRY
4	17	11	11	10	11	42	92
6	23	16	15	13	14	50	96
8	28	20	19	16	18	57	98
10	34	24	22	19	21	63	99
15	47	34	30	26	29	73	100
20	58	43	38	32	36	79	99
22.6	63	47	41	36	40	82	100
27	70	53	47	40	45	85	100
32.4	77	60	52	46	51	88	99
36.6	82	65	56	49	55	89	98
40	86	69	59	51	57	91	98
48.6	94	78	65	57	64	92	96
55	97	82	68	60	67	93	95
60	99	85	71	63	70	94	94
66.2	100	89	73	65	73	94	94
70	100	90	75	67	74	94	94
76.9	100	92	77	69	77	95	94
82.7	99	94	79	71	79	95	94
105	92	97	83	76	83	96	95
129.8	85	99	86	79	85	97	98
150	79	100	87	81	87	97	99
175	72	99	88	83	87	97	98
218.1	58	97	89	85	88	98	93
325	31	89	91	89	91	100	90
425	17	82	93	91	94	100	85
525	10	77	96	94	97	100	85
625	6	72	98	96	99	98	83
725	5	68	100	98	100	97	80
825	4	64	100	99	100	96	75
925	4	60	100	100	100	94	70

Figure 23. Rubicon River - R25.7 Spatial Niche Area by Individual Niche (top) and by Cumulative Area (bottom).



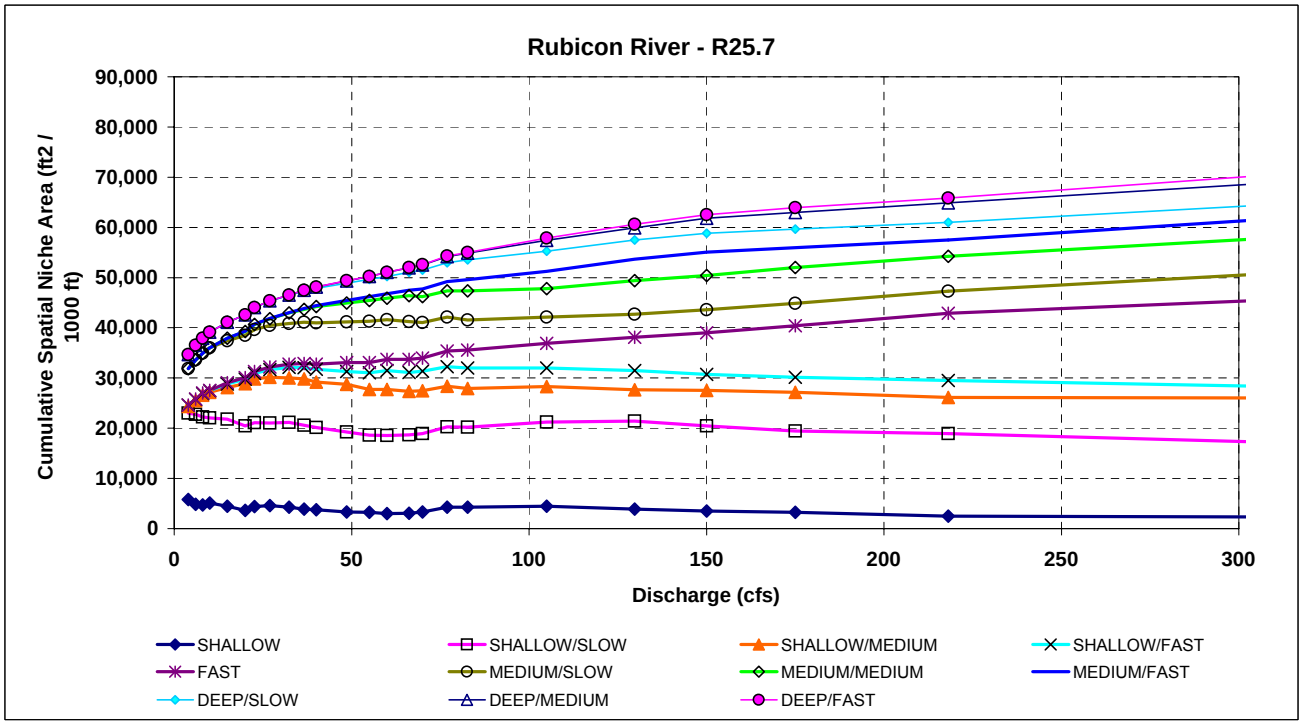
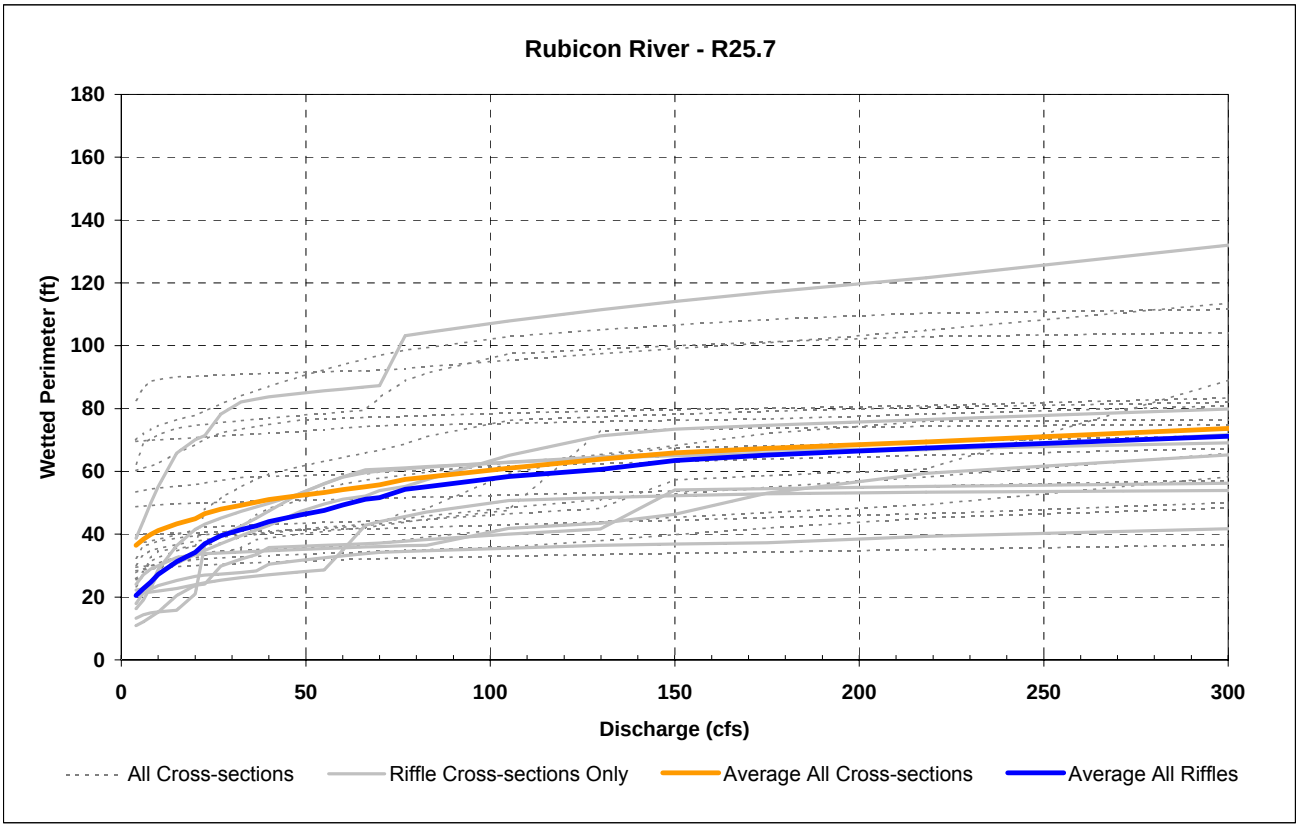
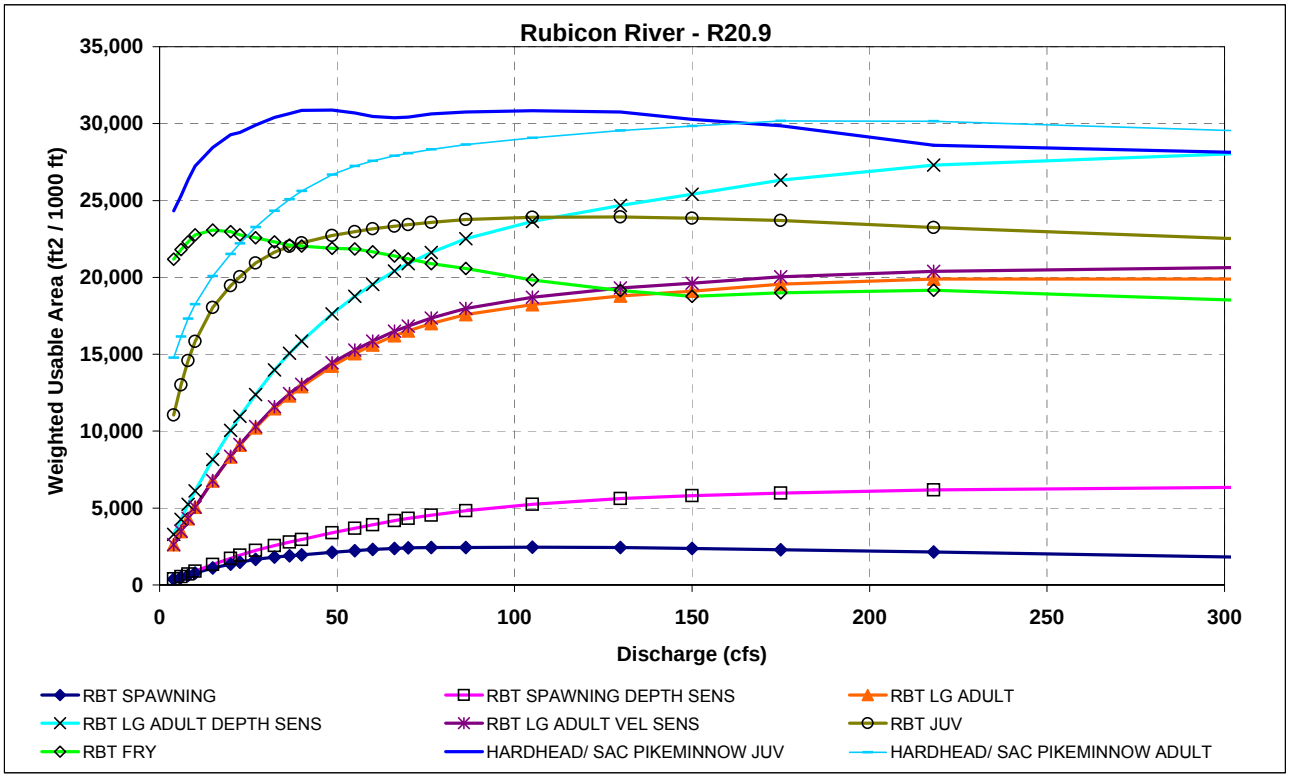


Figure 24. Rubicon River - R25.7 Wetted Perimeter.



Rubicon River R20.9

Figure 25. Rubicon River - R20.9 Weighted Usable Area (top) and Percent of Maximum Weighted Usable Area (bottom).



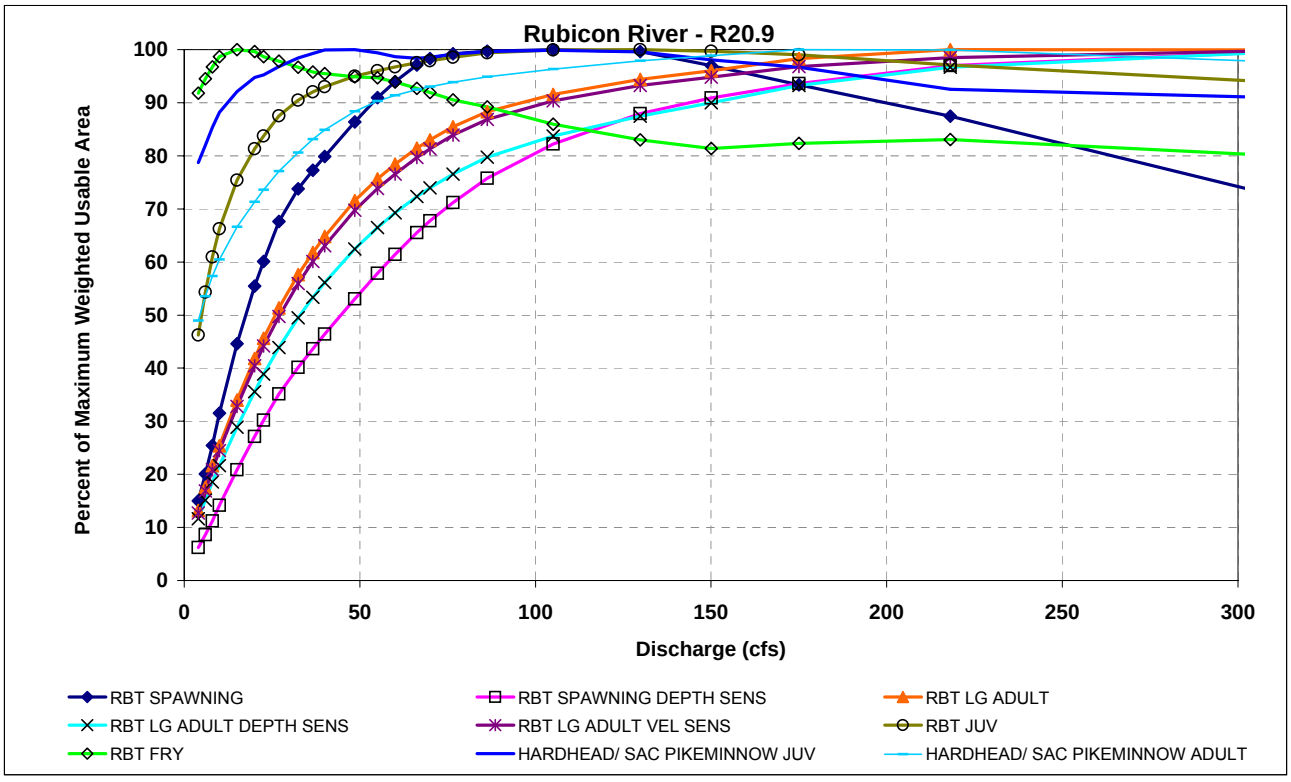


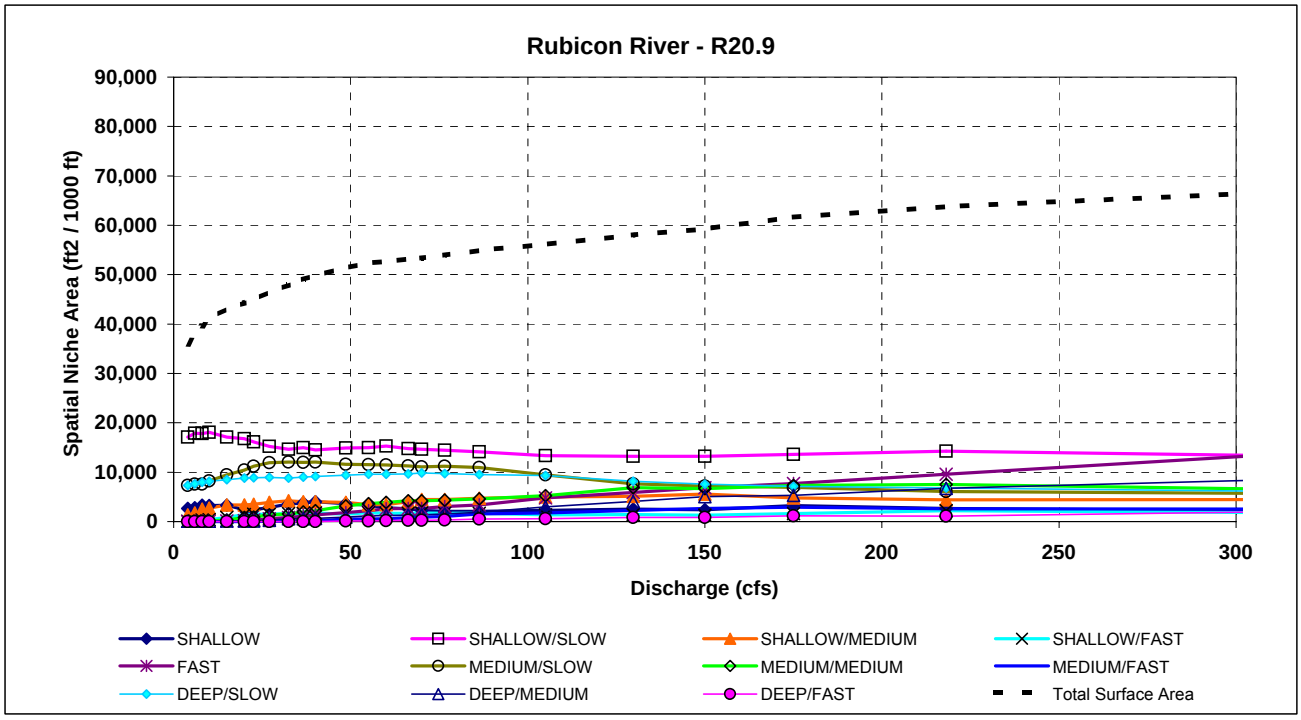
Table 9A. Rubicon River - R20.9 Weighted Usable Area.

Discharge (cfs)	Weighted Usable Area (ft^2 / 1000 ft)								
	RBT SPAWNING	RBT SPAWNING DEPTH SENS	RBT LG ADULT	RBT LG ADULT DEPTH SENS	RBT LG ADULT VEL SENS	RBT JUV	RBT FRY	HARDHEAD/ SAC PIKEMINNOW JUV	HARDHEAD/ SAC PIKEMINNOW ADULT
4	368	398	2629	3285	2631	11058	21176	24319	14767
6	492	550	3484	4275	3491	12997	21804	25313	16157
8	623	715	4306	5235	4319	14581	22313	26351	17303
10	773	903	5047	6108	5065	15843	22761	27230	18248
15	1093	1330	6764	8151	6788	18034	23071	28439	20090
20	1358	1730	8327	10043	8369	19446	22981	29270	21512
22.6	1473	1926	9085	10975	9140	20034	22763	29418	22203
27	1656	2241	10221	12391	10294	20939	22567	29898	23260
32.4	1808	2559	11472	13974	11583	21639	22305	30397	24320
36.6	1894	2783	12298	15056	12436	22018	22101	30659	25082
40	1956	2958	12899	15850	13051	22245	22030	30856	25616
48.6	2115	3385	14234	17630	14436	22727	21890	30884	26671
55	2229	3692	15050	18764	15283	22967	21841	30699	27247
60	2302	3917	15599	19546	15850	23150	21666	30474	27577
66.2	2379	4179	16204	20420	16492	23331	21386	30381	27904
70	2409	4322	16518	20887	16829	23421	21205	30430	28062
76.5	2431	4542	17005	21618	17361	23575	20887	30625	28316
86.3	2442	4832	17575	22517	17979	23772	20583	30764	28639
105	2450	5245	18219	23637	18697	23903	19835	30844	29068
129.8	2441	5610	18786	24689	19301	23923	19154	30750	29541
150	2375	5798	19104	25397	19620	23851	18769	30280	29836
175	2288	5970	19558	26319	20037	23693	18996	29865	30176
218.1	2143	6185	19898	27302	20382	23238	19157	28581	30153
325	1719	6378	19886	28230	20697	22333	18355	28013	29375
425	1227	6355	19471	28224	20369	21887	17984	26854	28747
525	836	6290	19218	28192	20141	21684	17072	25991	28264
625	516	6122	19060	28024	20013	21600	16053	25549	27923
725	297	5867	18764	27595	19686	21247	15093	25091	27659
825	161	5592	18571	27301	19478	20767	14288	24376	27432
925	136	5369	18450	27103	19330	20289	13626	23503	27149

Table 9B. Rubicon River - R20.9 Percent of Maximum Weighted Usable Area.

Discharge (cfs)	Percent of Maximum Weighted Usable Area								
	RBT SPAWNING	RBT SPAWNING DEPTH SENS	RBT LG ADULT	RBT LG ADULT DEPTH SENS	RBT LG ADULT VEL SENS	RBT JUV	RBT FRY	HARDHEAD/ SAC PIKEMINNOW JUV	HARDHEAD/ SAC PIKEMINNOW ADULT
4	15	6	13	12	13	46	92	79	49
6	20	9	18	15	17	54	95	82	54
8	25	11	22	19	21	61	97	85	57
10	32	14	25	22	24	66	99	88	60
15	45	21	34	29	33	75	100	92	67
20	55	27	42	36	40	81	100	95	71
22.6	60	30	46	39	44	84	99	95	74
27	68	35	51	44	50	88	98	97	77
32.4	74	40	58	50	56	90	97	98	81
36.6	77	44	62	53	60	92	96	99	83
40	80	46	65	56	63	93	95	100	85
48.6	86	53	72	62	70	95	95	100	88
55	91	58	76	66	74	96	95	99	90
60	94	61	78	69	77	97	94	99	91
66.2	97	66	81	72	80	98	93	98	92
70	98	68	83	74	81	98	92	99	93
76.5	99	71	85	77	84	99	91	99	94
86.3	100	76	88	80	87	99	89	100	95
105	100	82	92	84	90	100	86	100	96
129.8	100	88	94	87	93	100	83	100	98
150	97	91	96	90	95	100	81	98	99
175	93	94	98	93	97	99	82	97	100
218.1	87	97	100	97	98	97	83	93	100
325	70	100	100	100	100	93	80	91	97
425	50	100	98	100	98	91	78	87	95
525	34	99	97	100	97	91	74	84	94
625	21	96	96	99	97	90	70	83	93
725	12	92	94	98	95	89	65	81	92
825	7	88	93	97	94	87	62	79	91
925	6	84	93	96	93	85	59	76	90

Figure 26. Rubicon River - R20.9 Spatial Niche Area by Individual Niche (top) and by Cumulative Area (bottom).



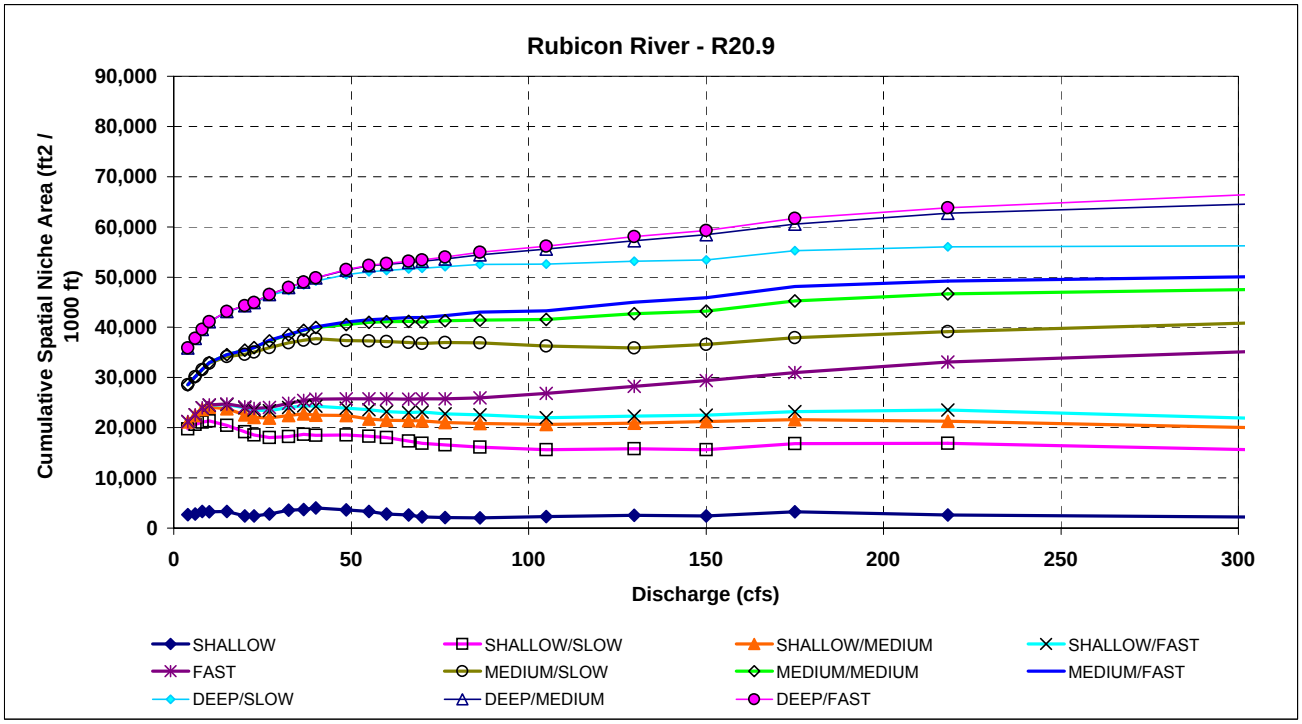
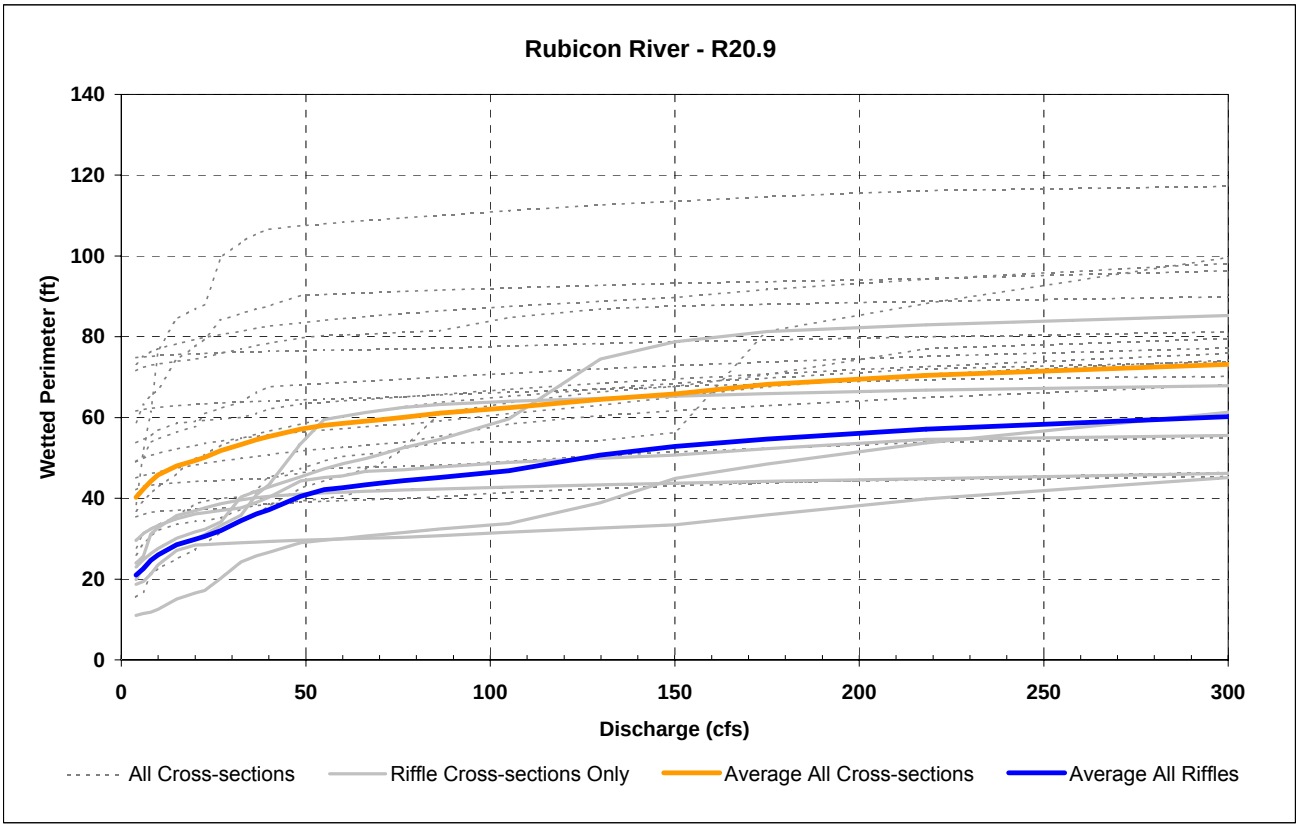


Figure 27. Rubicon River - R20.9 Wetted Perimeter.



Rubicon River R3.5

Figure 28. Rubicon River - R3.5 Weighted Usable Area (top) and Percent of Maximum Weighted Usable Area (bottom).

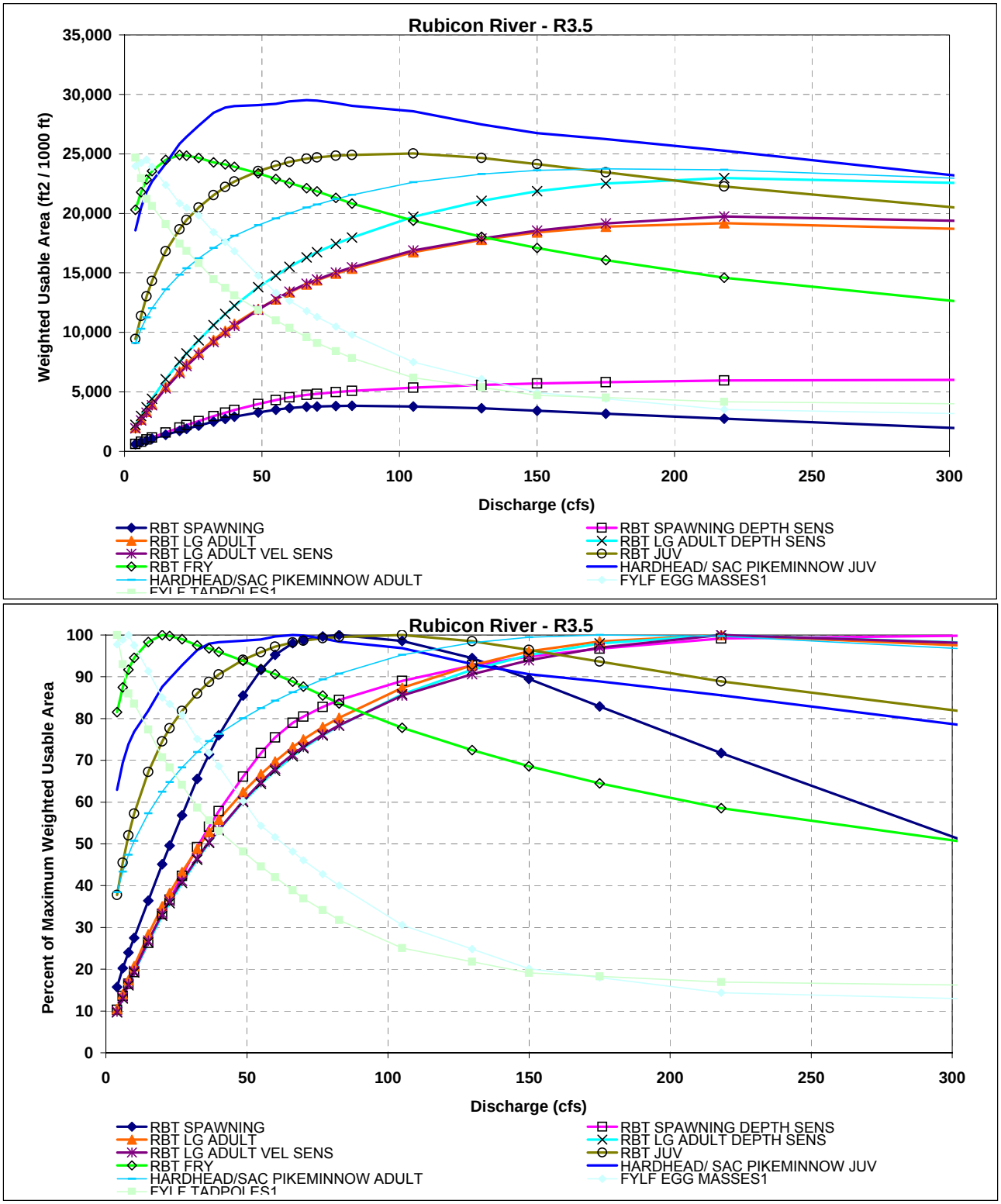


Table 10A. Rubicon River - R3.5 Weighted Usable Area.

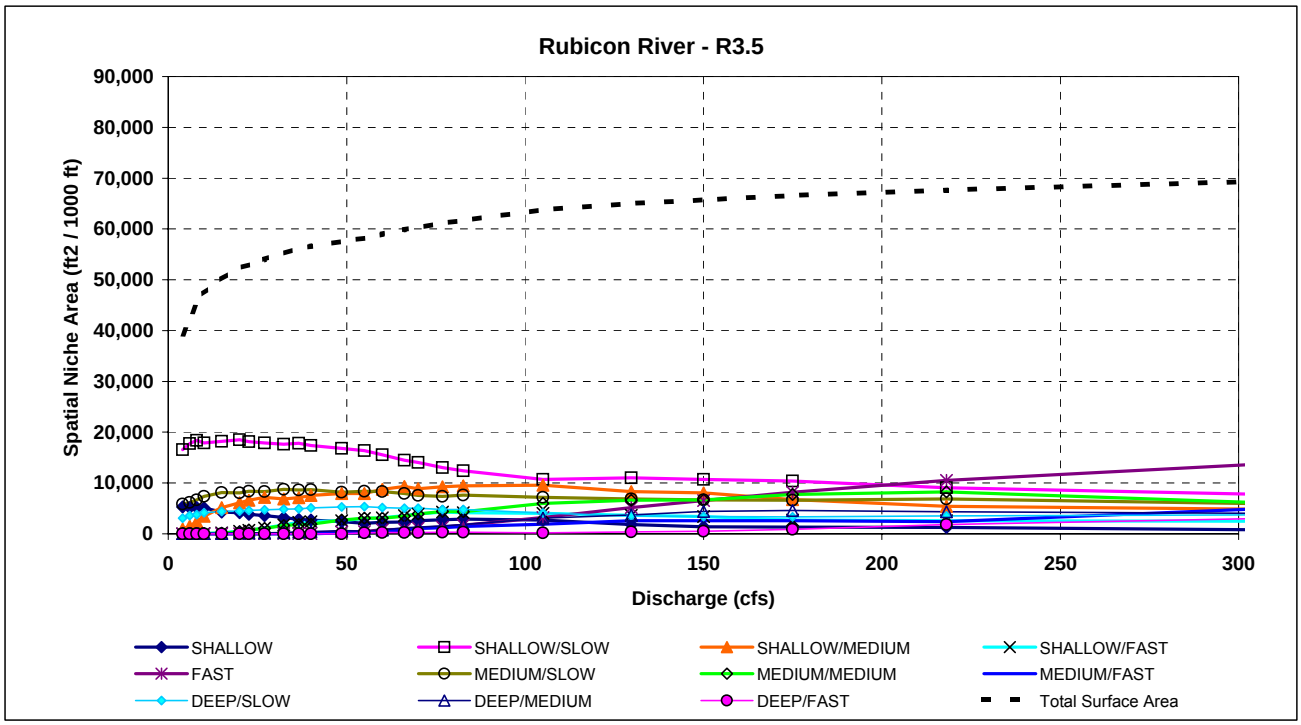
Discharge (cfs)	Weighted Usable Area (ft^2 / 1000 ft)										
	RBT SPAWNING	RBT SPAWNING DEPTH SENS	RBT LG ADULT	RBT LG ADULT DEPTH SENS	RBT LG ADULT VEL SENS	RBT JUV	RBT FRY	HARDHEAD/ SAC PIKEMINNOW JUV	HARDHEAD/SAC PIKEMINNOW ADULT	FYLF EGG MASSES[1]	FYLF TADPOLES[1]
4	602	620	2000	2229	1941	9451	20310	18582	9120	23967	24678
6	775	820	2685	2988	2610	11389	21785	20498	10288	24244	22952
8	920	995	3338	3715	3247	13021	22842	21806	11249	24522	21226
10	1053	1161	3968	4418	3867	14331	23552	22682	12038	23913	20616
15	1395	1584	5428	6067	5304	16826	24501	24171	13606	22390	19090
20	1729	1996	6723	7529	6574	18659	24909	25849	14833	20849	17453
22.6	1899	2206	7331	8229	7175	19443	24856	26432	15377	20472	16849
27	2178	2550	8289	9345	8128	20492	24660	27376	16212	19833	15826
32.4	2510	2964	9356	10610	9193	21530	24289	28453	17085	18420	14472
36.6	2735	3255	10137	11549	9971	22227	24115	28898	17707	17601	13731
40	2912	3480	10705	12237	10542	22677	23907	29008	18114	16817	13104
48.6	3274	3978	11971	13792	11900	23552	23366	29106	19008	14781	11892
55	3509	4319	12786	14788	12793	24014	22888	29203	19579	13325	11007
60	3649	4543	13371	15506	13426	24333	22565	29411	20003	12648	10375
66.2	3756	4755	14026	16309	14099	24590	22122	29517	20482	11808	9593
70	3783	4843	14378	16749	14452	24696	21837	29483	20749	11294	9113
76.9	3816	4984	14950	17456	15039	24841	21297	29266	21210	10491	8423
82.7	3830	5085	15371	17975	15472	24918	20830	29045	21545	9817	7843
105	3775	5357	16744	19715	16884	25035	19379	28580	22617	7497	6181
129.8	3618	5580	17787	21062	17892	24658	18042	27475	23308	6083	5375
150	3427	5709	18417	21867	18550	24143	17083	26740	23612	4932	4719
175	3175	5822	18879	22514	19152	23451	16069	26242	23739	4416	4519
218.1	2747	5971	19172	22975	19745	22256	14584	25258	23670	3527	4174
325	1750	6020	18566	22457	19274	20013	12081	22611	22774	3086	3952
425	1058	5814	17819	21825	18449	18222	10946	20740	21901	3120	3894
525	641	5554	17055	21314	17615	16971	10300	19134	21262	3154	3837
625	427	5233	16393	20859	16893	16116	9833	18319	20701	3020	3703
725	321	4979	15806	20423	16254	15474	9298	17871	20175	2885	3568
825	250	4739	15271	19935	15705	14950	8481	17311	19730	2895	3634
925	187	4512	14859	19577	15281	14523	7871	17114	19341	2904	3699

[1]Interpolated values in gray.

Table 10B. Rubicon River - R3.5 Percent of Maximum Weighted Usable Area.

Discharge (cfs)	Percent of Maximum Weighted Usable Area										
	RBT SPAWNING	RBT SPAWNING DEPTH SENS	RBT LG ADULT	RBT LG ADULT DEPTH SENS	RBT LG ADULT VEL SENS	RBT JUV	RBT FRY	HARDHEAD/ SAC PIKEMINNOW JUV	HARDHEAD/SAC PIKEMINNOW ADULT	FYLF EGG MASSES	FYLF TADPOLES
4	16	10	10	10	10	38	82	63	38	98	100
6	20	14	14	13	13	45	87	69	43	99	93
8	24	17	17	16	16	52	92	74	47	100	86
10	28	19	21	19	20	57	95	77	51	98	84
15	36	26	28	26	27	67	98	82	57	91	77
20	45	33	35	33	33	75	100	88	62	85	71
22.6	50	37	38	36	36	78	100	90	65	83	68
27	57	42	43	41	41	82	99	93	68	81	64
32.4	66	49	49	46	47	86	98	96	72	75	59
36.6	71	54	53	50	51	89	97	98	75	72	56
40	76	58	56	53	53	91	96	98	76	69	53
48.6	85	66	62	60	60	94	94	99	80	60	48
55	92	72	67	64	65	96	92	99	82	54	45
60	95	75	70	67	68	97	91	100	84	52	42
66.2	98	79	73	71	71	98	89	100	86	48	39
70	99	80	75	73	73	99	88	100	87	46	37
76.9	100	83	78	76	76	99	86	99	89	43	34
82.7	100	84	80	78	78	100	84	98	91	40	32
105	99	89	87	86	86	100	78	97	95	31	25
129.8	94	93	93	92	91	98	72	93	98	25	22
150	89	95	96	95	94	96	69	91	99	20	19
175	83	97	98	98	97	94	65	89	100	18	18
218.1	72	99	100	100	100	89	59	86	100	14	17
325	46	100	97	98	98	80	49	77	96	13	16
425	28	97	93	95	93	73	44	70	92	13	16
525	17	92	89	93	89	68	41	65	90	13	16
625	11	87	86	91	86	64	39	62	87	12	15
725	8	83	82	89	82	62	37	61	85	12	14
825	7	79	80	87	80	60	34	59	83	12	15
925	5	75	78	85	77	58	32	58	81	12	15

Figure 29. Rubicon River - R3.5 Spatial Niche Area by Individual Niche (top) and by Cumulative Area (bottom).



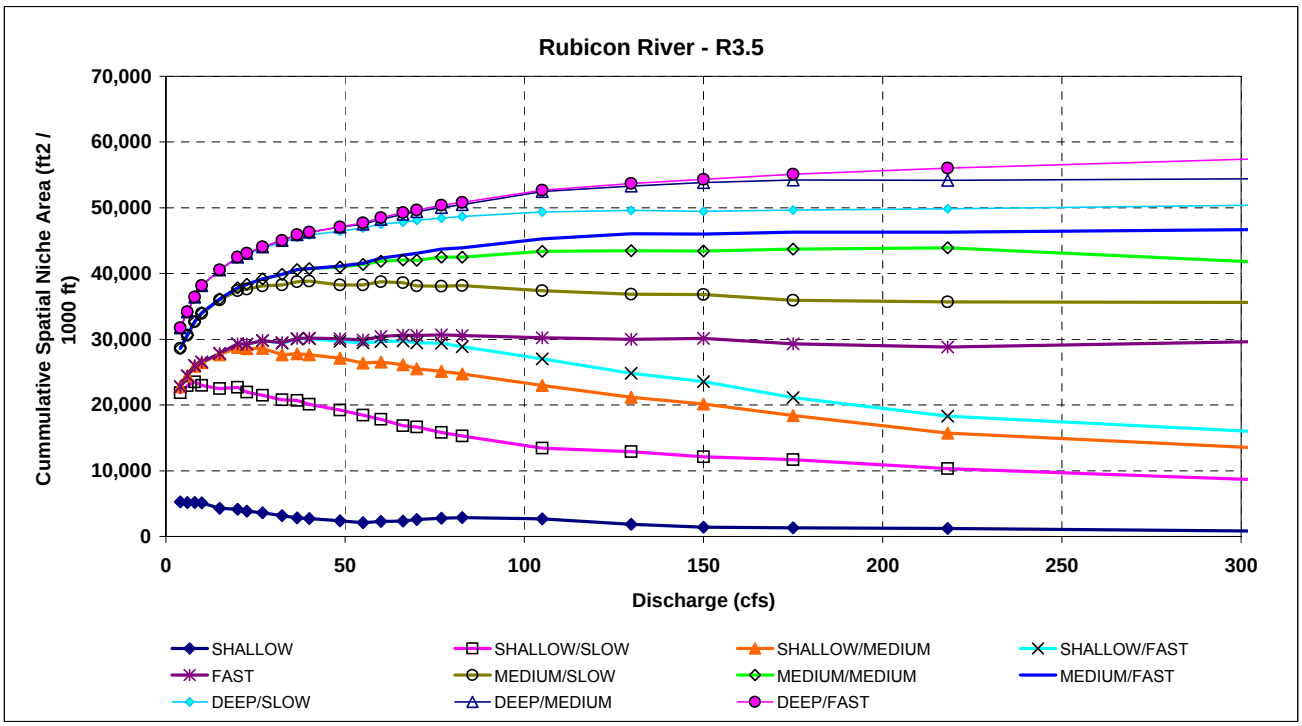
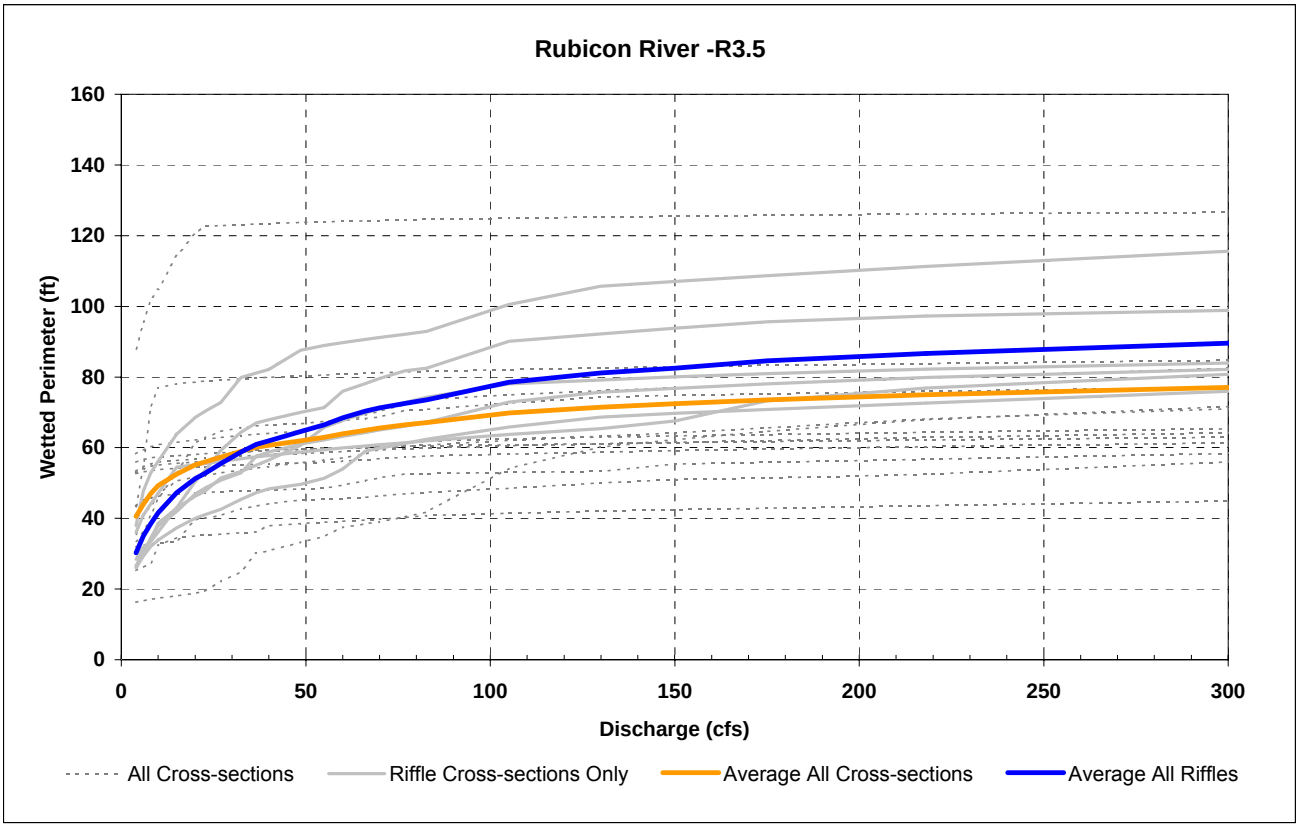
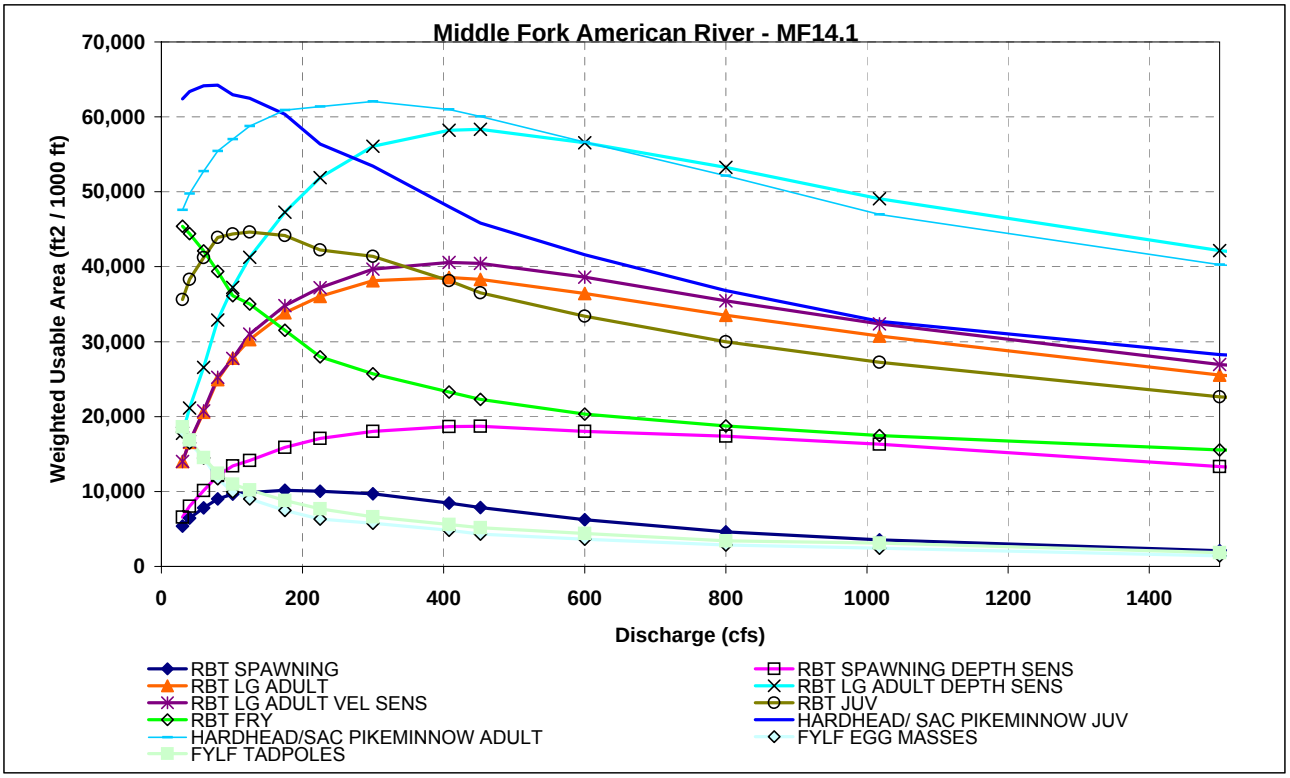


Figure 30. Rubicon River -R3.5 Wetted Perimeter.



Middle Fork American River MF14.1

Figure 31. Middle Fork American River - MF14.1 Weighted Usable Area (top) and Percent of Maximum Weighted Usable Area (bottom).



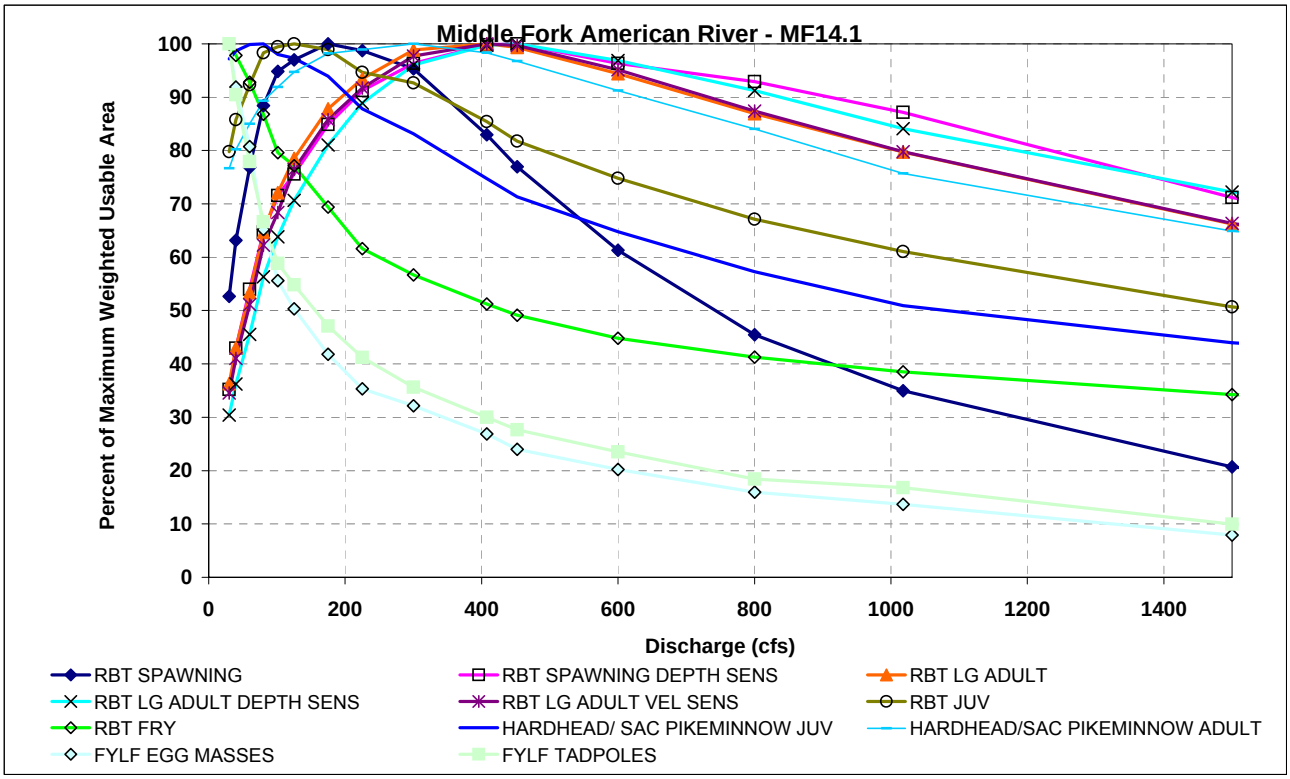


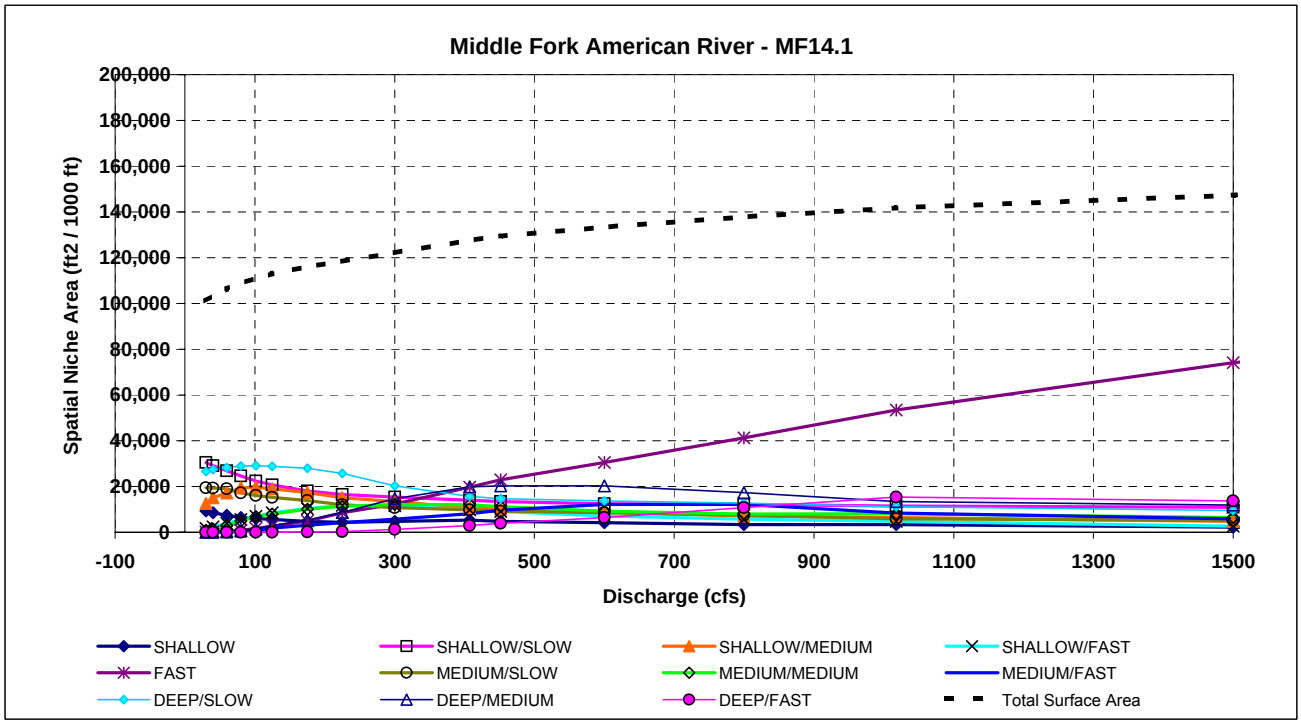
Table 11A. Middle Fork American River - MF14.1 Weighted Usable Area.

Discharge (cfs)	Weighted Usable Area (ft^2 / 1000 ft)										
	RBT SPAWNING	RBT SPAWNING DEPTH SENS	RBT LG ADULT	RBT LG ADULT DEPTH SENS	RBT LG ADULT VEL SENS	RBT JUV	RBT FRY	HARDHEAD/ SAC PIKEMINNOW JUV	HARDHEAD/SAC PIKEMINNOW ADULT	FYLF EGG MASSES	FYLF TADPOLES
30	5367	6597	13997	17763	14026	35608	45390	62414	47570	17926	18640
40	6431	8039	16575	21129	16637	38294	44410	63367	49762	16476	16857
60	7826	10104	20578	26561	20737	41214	42109	64149	52741	14472	14520
80	9006	12113	24931	32885	25256	43899	39391	64223	55434	11687	12423
101	9660	13396	27805	37260	27757	44392	36119	62965	57002	9970	10972
125	9883	14151	30278	41237	31023	44636	35006	62472	58766	9021	10222
175	10186	15890	33870	47297	34810	44148	31505	60345	60914	7491	8780
225	10057	17077	36031	51875	37205	42250	27969	56391	61366	6339	7682
300	9708	18036	38121	56059	39659	41371	25723	53410	62043	5759	6639
408	8453	18681	38554	58200	40575	38130	23257	48020	61004	4820	5589
452	7839	18720	38310	58357	40452	36509	22288	45821	60029	4300	5153
600	6242	18030	36414	56539	38607	33379	20340	41592	56625	3627	4379
800	4632	17392	33512	53253	35466	29973	18741	36799	52142	2857	3437
1018	3563	16318	30732	49089	32368	27262	17486	32721	46967	2451	3125
1500	2111	13332	25524	42166	26932	22626	15538	28256	40276	1418	1858
2000	1499	10776	22173	37488	23312	20076	14903	25758	36348	985	1512
2500	1227	8801	20408	34274	21349	19129	14630	24429	33655	668	1264
3000	1103	7634	19416	32455	20356	18416	14331	23502	31892	575	1374
4000	922	5713	18404	30399	19250	17779	14546	22449	30336	884	1757
6000	750	4118	17940	29420	18827	18128	13926	21862	28779	824	1416

Table 11B. Middle Fork American River - MF14.1 Percent of Maximum Weighted Usable Area.

Discharge (cfs)	Percent of Maximum Weighted Usable Area										
	RBT SPAWNING	RBT SPAWNING DEPTH SENS	RBT LG ADULT	RBT LG ADULT DEPTH SENS	RBT LG ADULT VEL SENS	RBT JUV	RBT FRY	HARDHEAD/ SAC PIKEMINNOW JUV	HARDHEAD/SAC PIKEMINNOW ADULT	FYLF EGG MASSES	FYLF TADPOLES
30	53	35	36	30	35	80	100	97	77	100	100
40	63	43	43	36	41	86	98	99	80	92	90
60	77	54	53	46	51	92	93	100	85	81	78
80	88	65	65	56	62	98	87	100	89	65	67
101.3	95	72	72	64	68	99	80	98	92	56	59
125	97	76	79	71	76	100	77	97	95	50	55
175	100	85	88	81	86	99	69	94	98	42	47
225	99	91	93	89	92	95	62	88	99	35	41
300	95	96	99	96	98	93	57	83	100	32	36
407.6	83	100	100	100	100	85	51	75	98	27	30
452	77	100	99	100	100	82	49	71	97	24	28
600	61	96	94	97	95	75	45	65	91	20	23
800	45	93	87	91	87	67	41	57	84	16	18
1018	35	87	80	84	80	61	39	51	76	14	17
1500	21	71	66	72	66	51	34	44	65	8	10
2000	15	58	58	64	57	45	33	40	59	5	8
2500	12	47	53	59	53	43	32	38	54	4	7
3000	11	41	50	56	50	41	32	37	51	3	7
4000	9	31	48	52	47	40	32	35	49	5	9
6000	7	22	47	50	46	41	31	34	46	5	8

Figure 32. Middle Fork American River - MF14.1 Spatial Niche Area by Individual Niche (top) and by Cumulative Area (bottom).



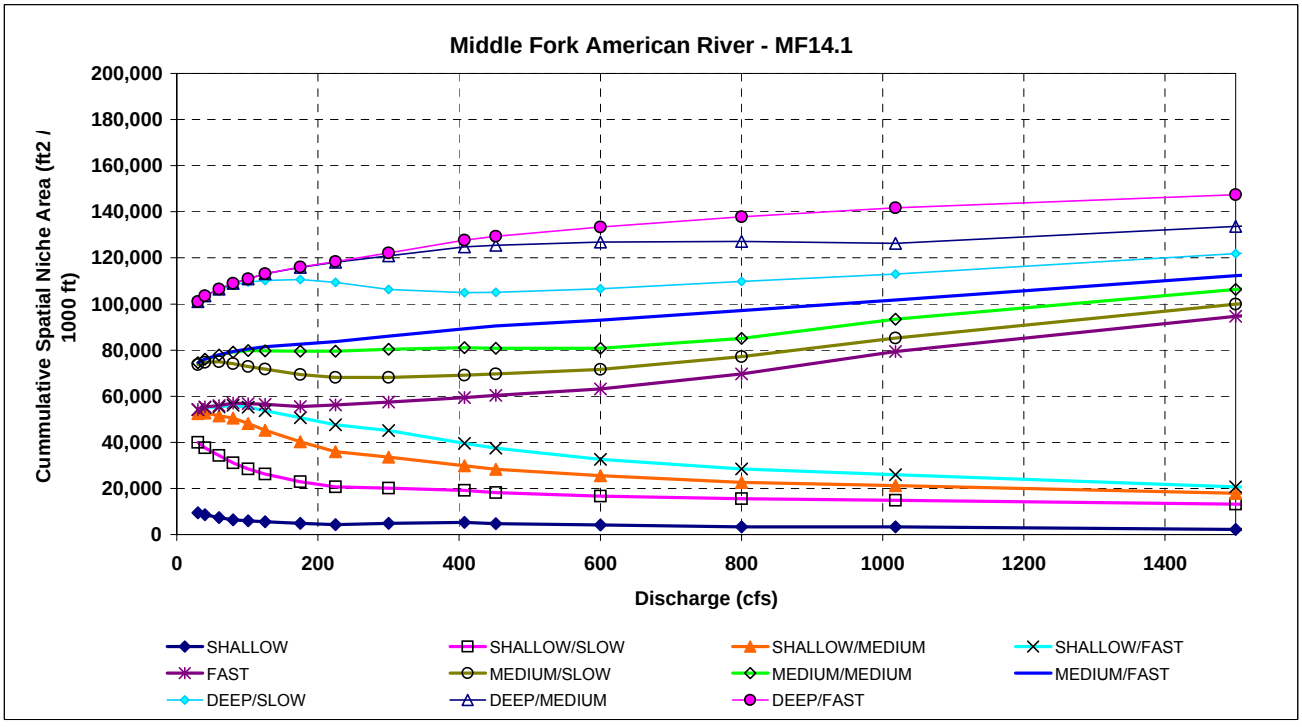
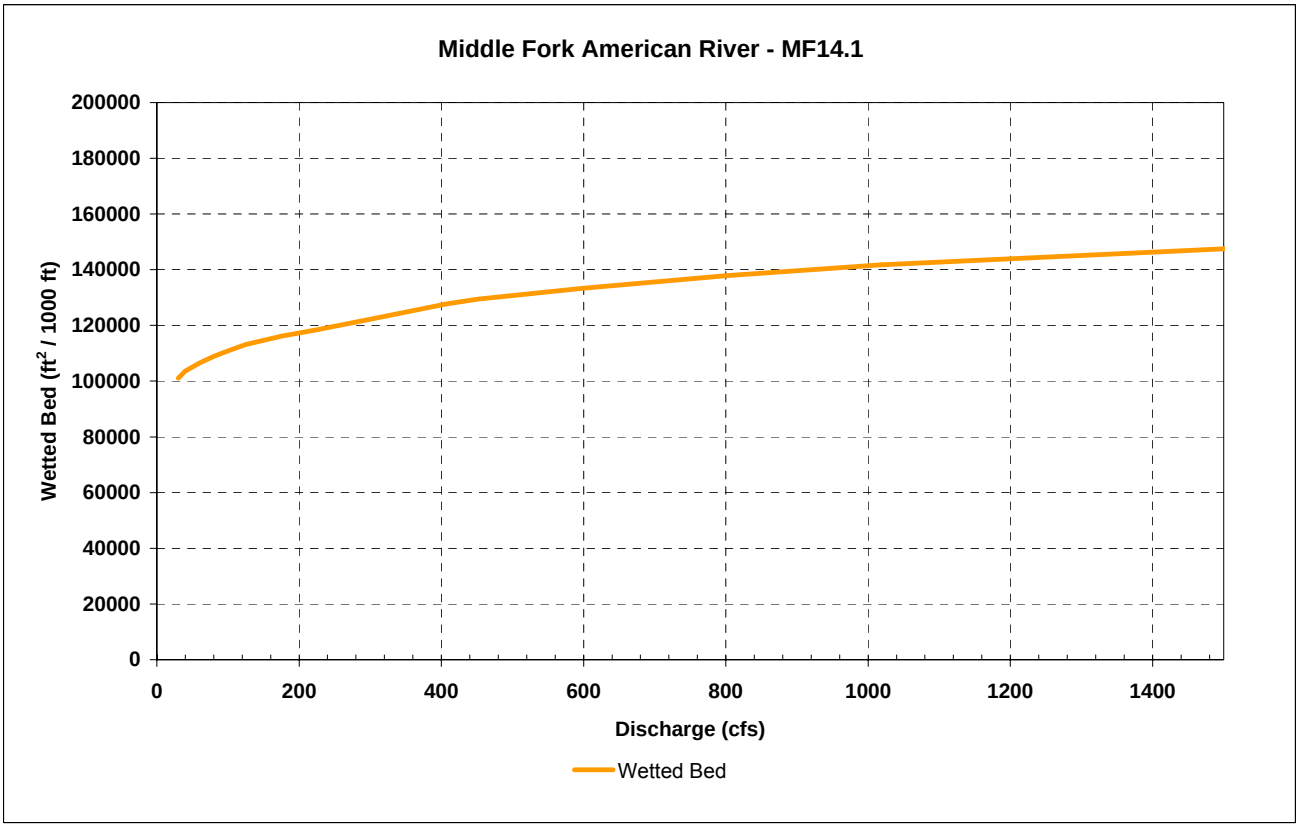
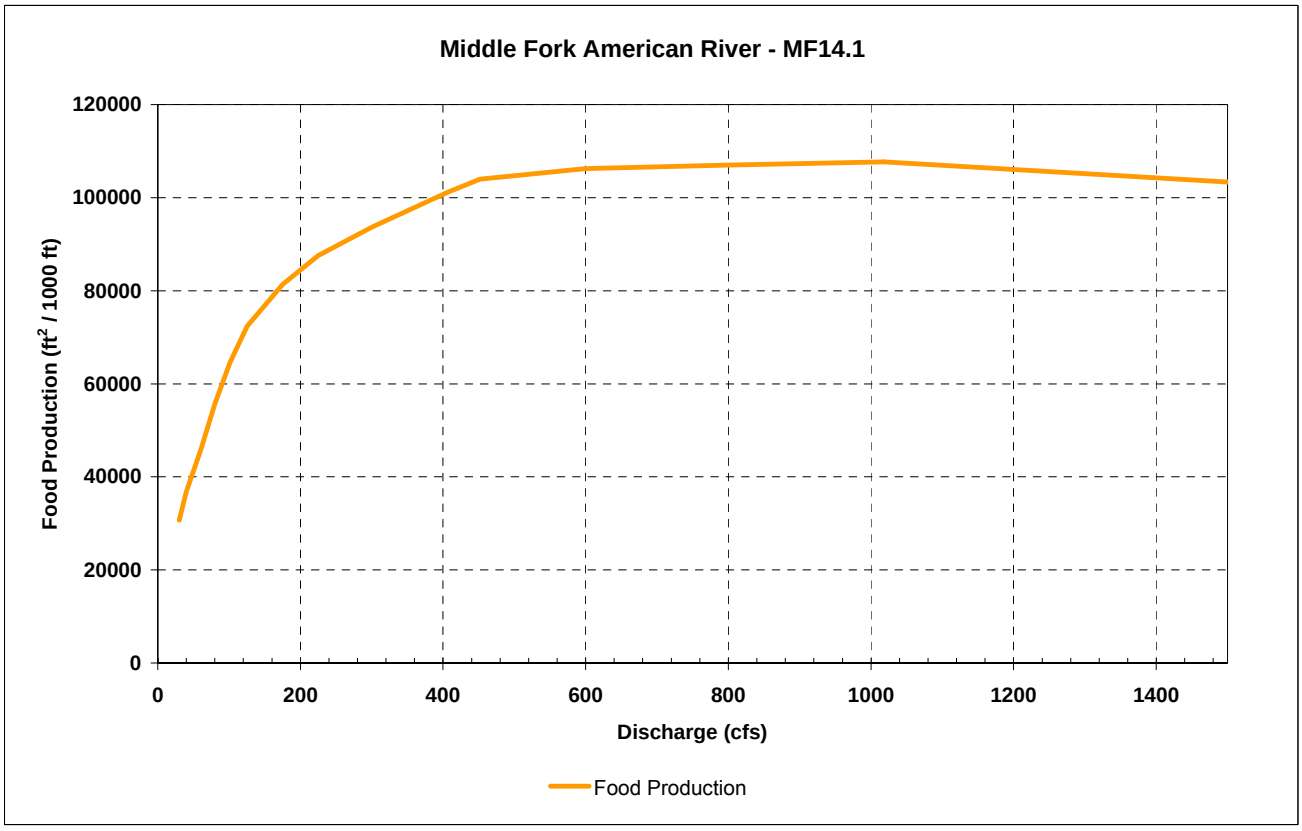


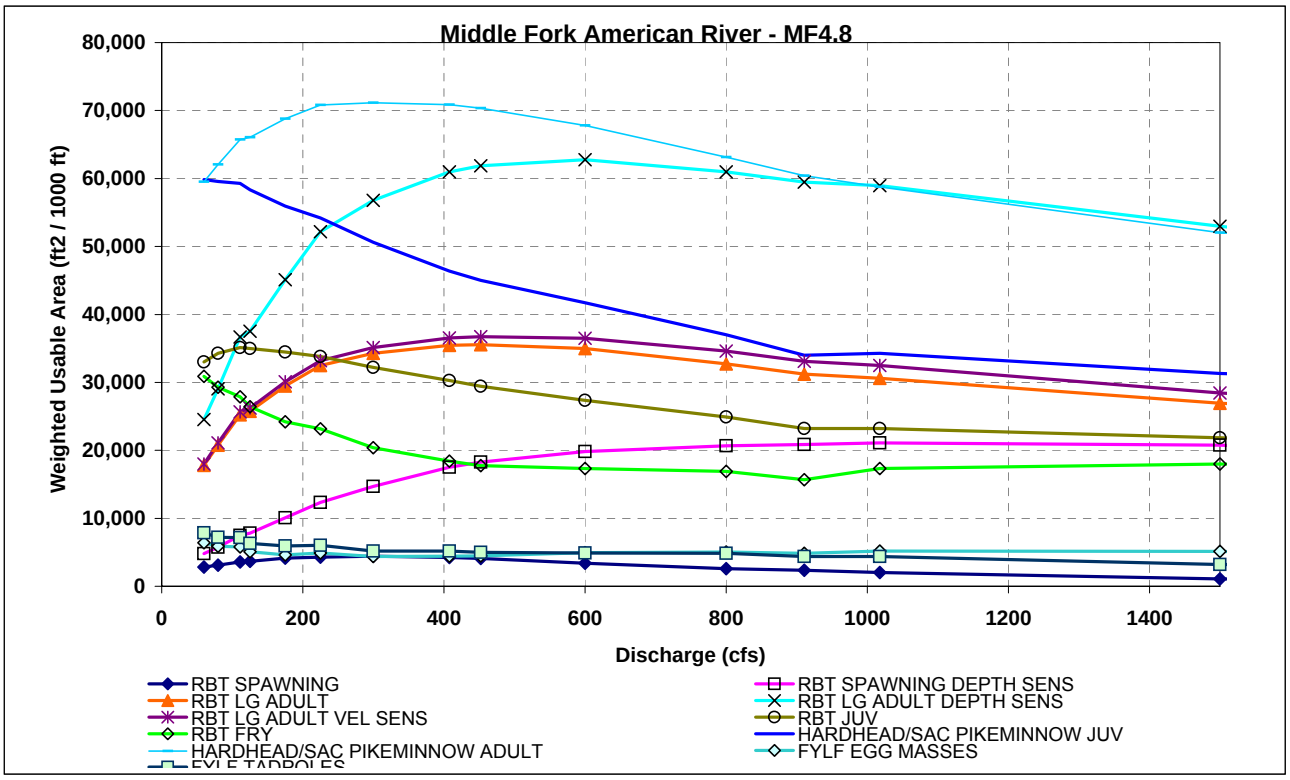
Figure 33. Middle Fork American River - MF14.1 Wetted Bed and Food Production by Flow.





Middle Fork American River MF4.8

Figure 34. Middle Fork American River - MF4.8 Weighted Usable Area (top) and Percent of Maximum Weighted Usable Area (bottom).



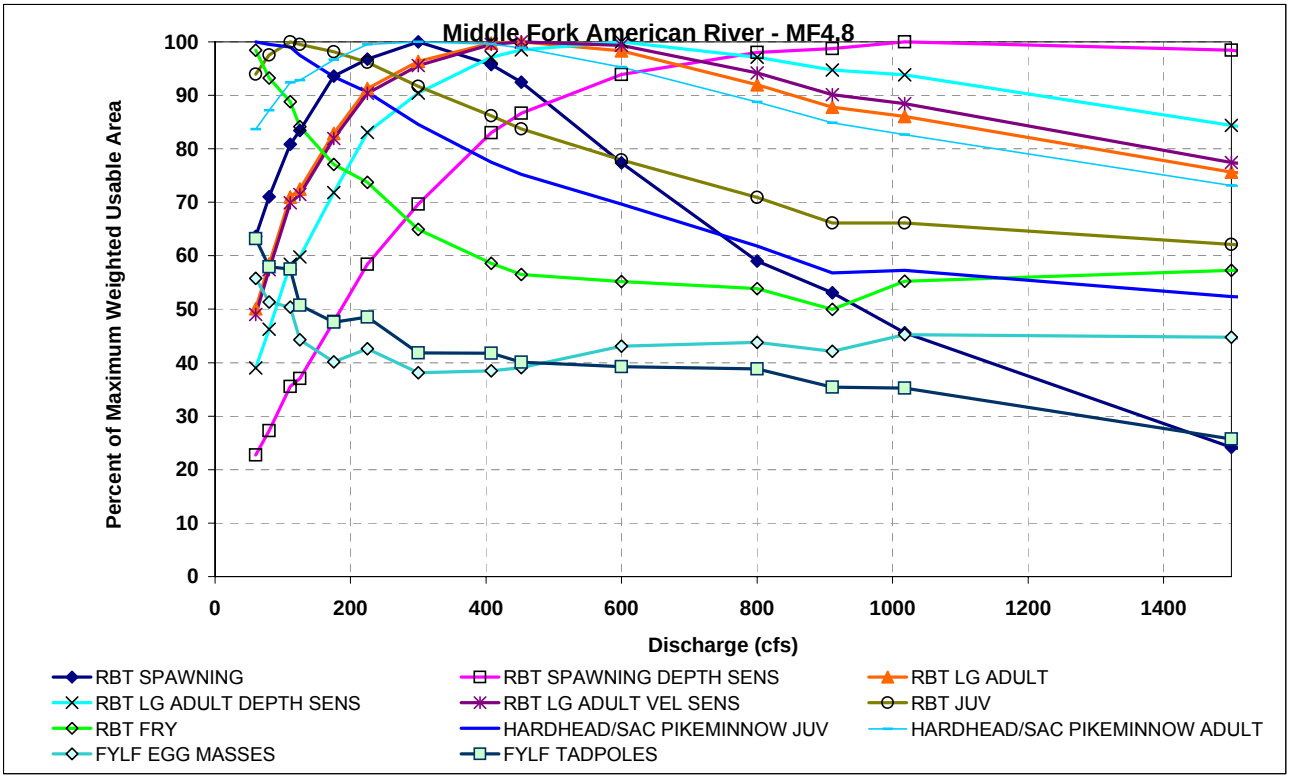


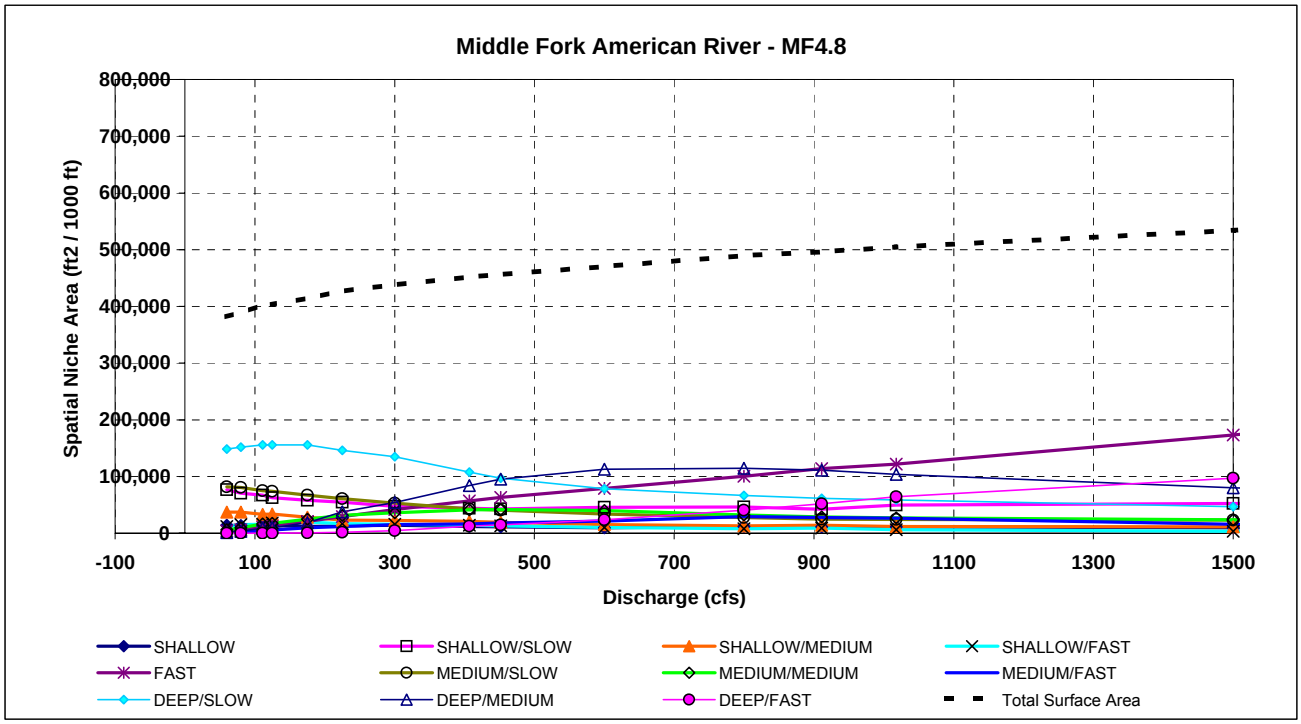
Table 12A. Middle Fork American River - MF4.8 Weighted Usable Area.

Discharge (cfs)	Weighted Usable Area (ft^2 / 1000 ft)										
	RBT SPAWNING	RBT SPAWNING DEPTH SENS	RBT LG ADULT	RBT LG ADULT DEPTH SENS	RBT LG ADULT VEL SENS	RBT JUV	RBT FRY	HARDHEAD/SAC PIKEMINNOW JUV	HARDHEAD/SAC PIKEMINNOW ADULT	FYLF EGG MASSES	FYLF TADPOLES
60	2805	4796	17806	24517	18003	33008	30902	59852	59517	6413	7856
80	3130	5758	20789	29065	21083	34275	29275	59576	62047	5898	7200
111	3564	7499	25242	36675	25676	35128	27878	59267	65752	5790	7150
125	3678	7825	25769	37538	26240	34964	26403	58332	66040	5088	6308
175	4128	10063	29487	45096	30086	34468	24193	55944	68773	4615	5915
225	4265	12329	32467	52166	33185	33788	23149	54216	70796	4894	6030
300	4409	14709	34277	56795	35105	32215	20383	50609	71146	4380	5203
408	4221	17522	35476	61000	36554	30269	18399	46400	70869	4425	5191
452	4076	18284	35568	61861	36726	29408	17733	45038	70352	4493	4985
600	3411	19820	34969	62789	36490	27377	17313	41699	67800	4951	4883
800	2602	20688	32720	61000	34598	24905	16907	37005	63130	5036	4831
911	2341	20840	31218	59471	33097	23226	15693	34009	60391	4842	4402
1018	2011	21107	30606	58937	32480	23229	17336	34275	58787	5202	4380
1500	1067	20774	26915	52986	28449	21829	17984	31333	52028	5145	3202
2000	658	18998	24598	47813	25851	20441	17375	29805	48099	4029	3211
2500	764	16998	23048	43996	24161	20043	17634	29864	45787	3309	2892
3000	1247	15624	21906	41670	22892	20585	22834	30718	44507	5549	10552
4000	1784	13611	22322	40493	23224	26087	31390	37368	44300	11492	12429
6000	3937	14001	31592	49974	33004	32592	20885	33528	44149	2076	3030

Table 12B. Middle Fork American River - MF4.8 Percent of Maximum Weighted Usable Area.

Discharge (cfs)	Percent of Maximum Weighted Usable Area										
	RBT SPAWNING	RBT SPAWNING DEPTH SENS	RBT LG ADULT	RBT LG ADULT DEPTH SENS	RBT LG ADULT VEL SENS	RBT JUV	RBT FRY	HARDHEAD/SAC PIKEMINNOW JUV	HARDHEAD/SAC PIKEMINNOW ADULT	FYLF EGG MASSES	FYLF TADPOLES
60	64	23	50	39	49	94	98	100	84	56	63
80	71	27	58	46	57	98	93	100	87	51	58
111	81	36	71	58	70	100	89	99	92	50	58
125	83	37	72	60	71	100	84	97	93	44	51
175	94	48	83	72	82	98	77	93	97	40	48
225	97	58	91	83	90	96	74	91	100	43	49
300	100	70	96	90	96	92	65	85	100	38	42
407.6	96	83	100	97	100	86	59	78	100	39	42
452	92	87	100	99	100	84	56	75	99	39	40
600	77	94	98	100	99	78	55	70	95	43	39
800	59	98	92	97	94	71	54	62	89	44	39
911	53	99	88	95	90	66	50	57	85	42	35
1018	46	100	86	94	88	66	55	57	83	45	35
1500	24	98	76	84	77	62	57	52	73	45	26
2000	15	90	69	76	70	58	55	50	68	35	26
2500	17	81	65	70	66	57	56	50	64	29	23
3000	28	74	62	66	62	59	73	51	63	48	85
4000	40	64	63	64	63	74	100	62	62	100	100
6000	89	66	89	80	90	93	67	56	62	18	24

Figure 35. Middle Fork American River - MF4.8 Spatial Niche Area by Individual Niche (top) and by Cumulative Area (bottom).



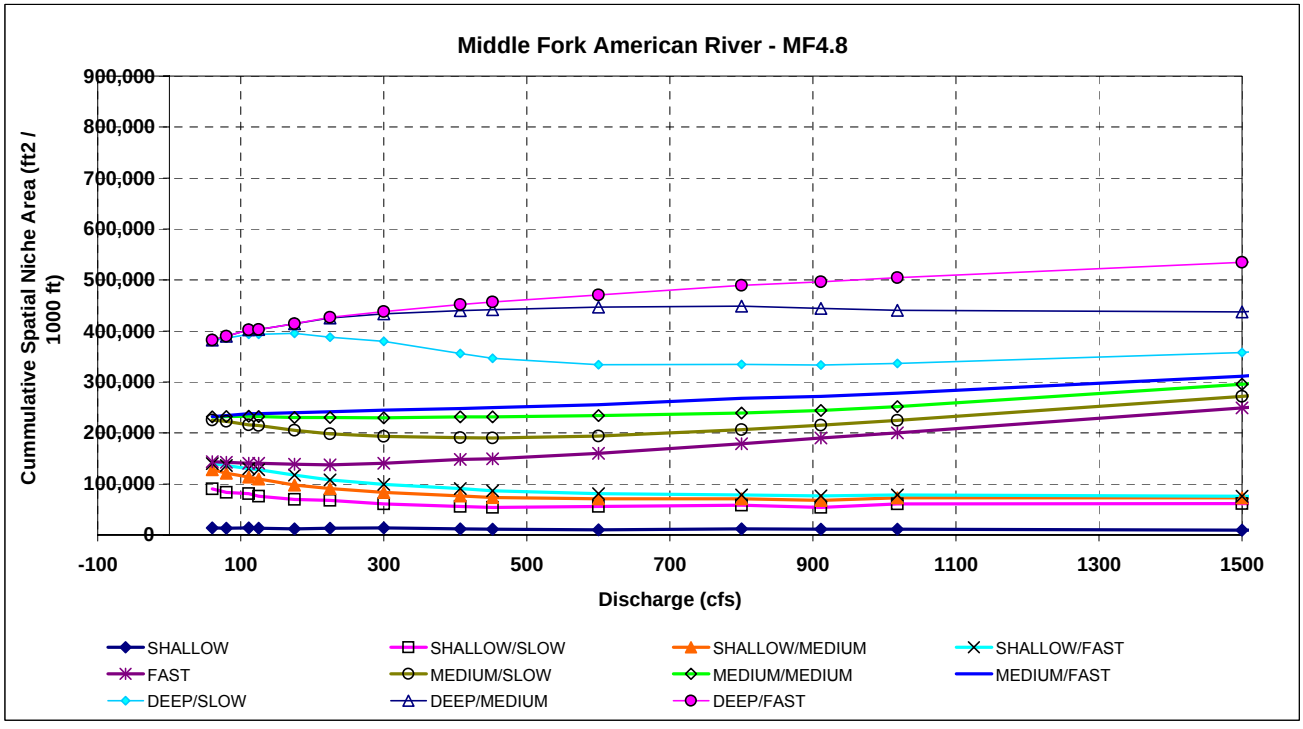
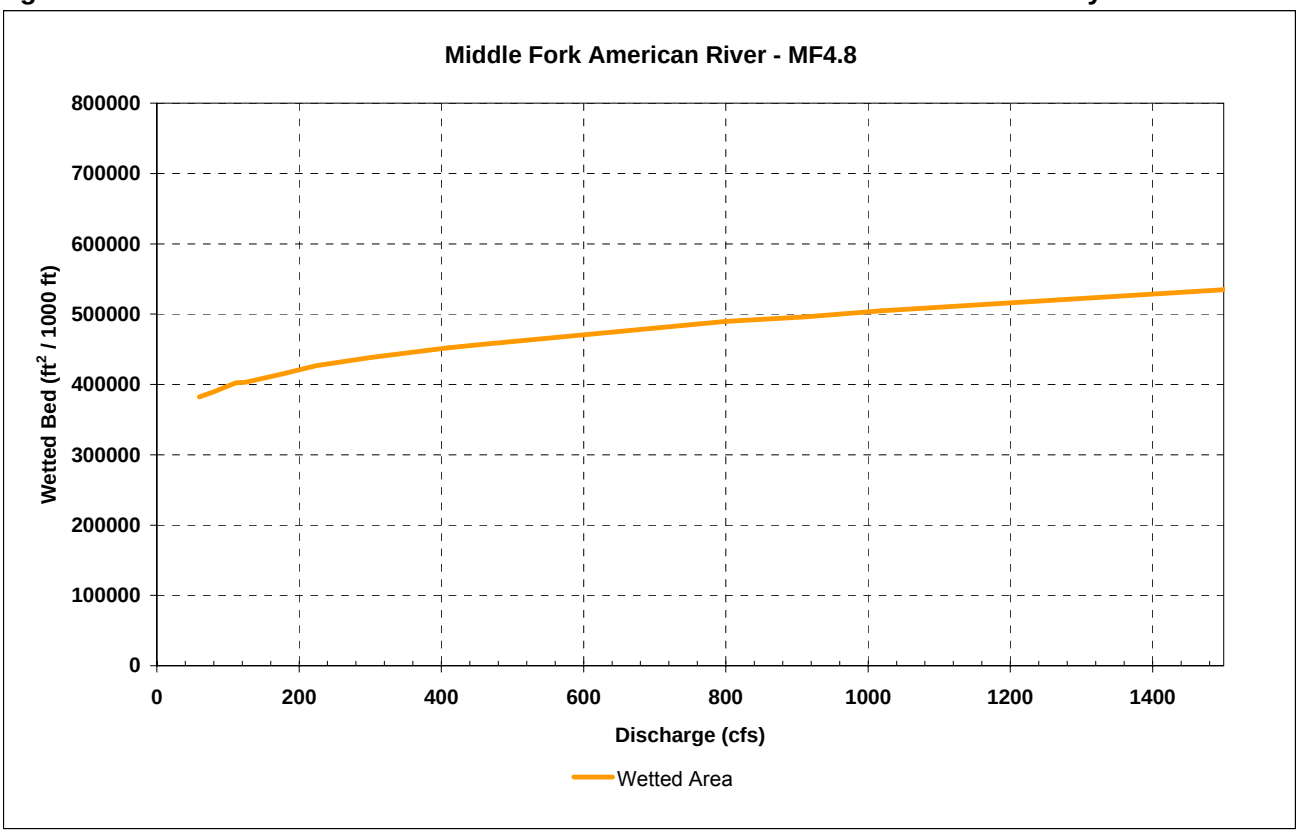
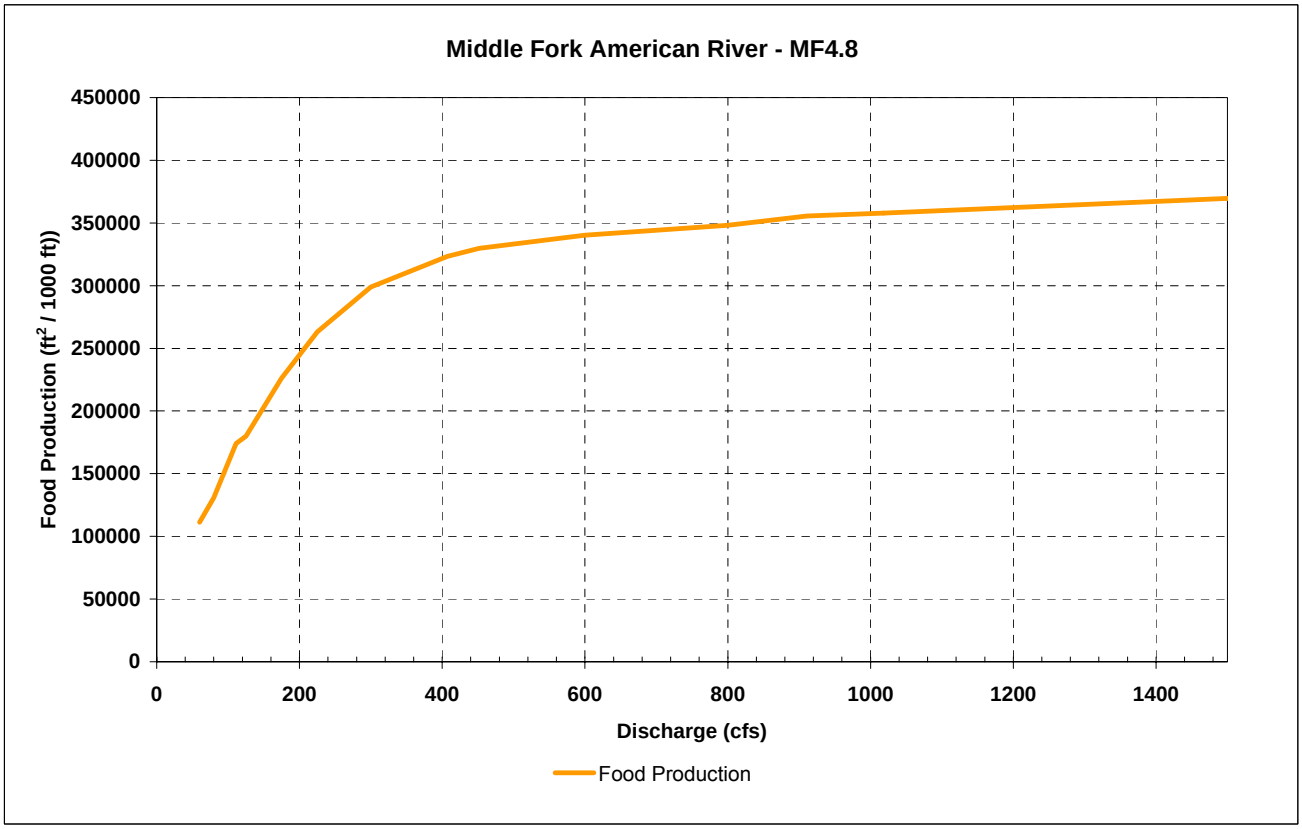


Figure 36. Middle Fork American River - MF4.8 Wetted Bed and Food Production by Flow.





EFFECTIVE HABITAT ANALYSES

Middle Fork American River at Fords Bar MF14.1

Effective Habitat Matrices

Figure 37. Middle Fork American River MF14.1 Effective Rainbow Trout Spawning Habitat Matrix.

Starting Discharge (cfs)	Ending Discharge (cfs)																	Initial Habitat vs Flow Relationship
	2500	2000	1500	1018	800	600	452	407	300	225	175	125	101	80	60	40	30	
2500 cfs	1227	852	564	283	163	67	20	12	4	1	1	0	0	0	0	0	0	1227
2000 cfs		1499	1134	672	458	221	89	58	15	5	2	0	0	0	0	0	0	1499
1500 cfs			2111	1505	1121	644	396	322	187	135	95	48	35	25	15	7	4	2111
1018 cfs				3563	2990	2296	1893	1745	1438	1243	1067	876	792	694	559	410	321	3563
800 cfs					4632	3857	3390	3208	2775	2466	2193	1876	1724	1535	1245	947	774	4632
600 cfs						6242	5725	5519	4966	4506	4112	3591	3322	2957	2427	1916	1595	6242
452 cfs							7839	7600	6948	6412	5930	5229	4844	4331	3610	2891	2424	7839
407.6 cfs								8453	7771	7209	6697	5936	5513	4948	4145	3337	2809	8453
300 cfs									9708	9104	8518	7635	7141	6462	5459	4427	3749	9708
225 cfs										10057	9415	8468	7940	7201	6100	4974	4215	10057
175 cfs											10186	9195	8630	7841	6667	5456	4628	10186
125 cfs												9883	9283	8452	7210	5904	4992	9883
101.3 cfs													9660	8764	7455	6096	5140	9660
80 cfs														9006	7649	6235	5235	9006
60 cfs															7826	6334	5293	7826
40 cfs																6431	5346	6431
30 cfs																	5367	5367

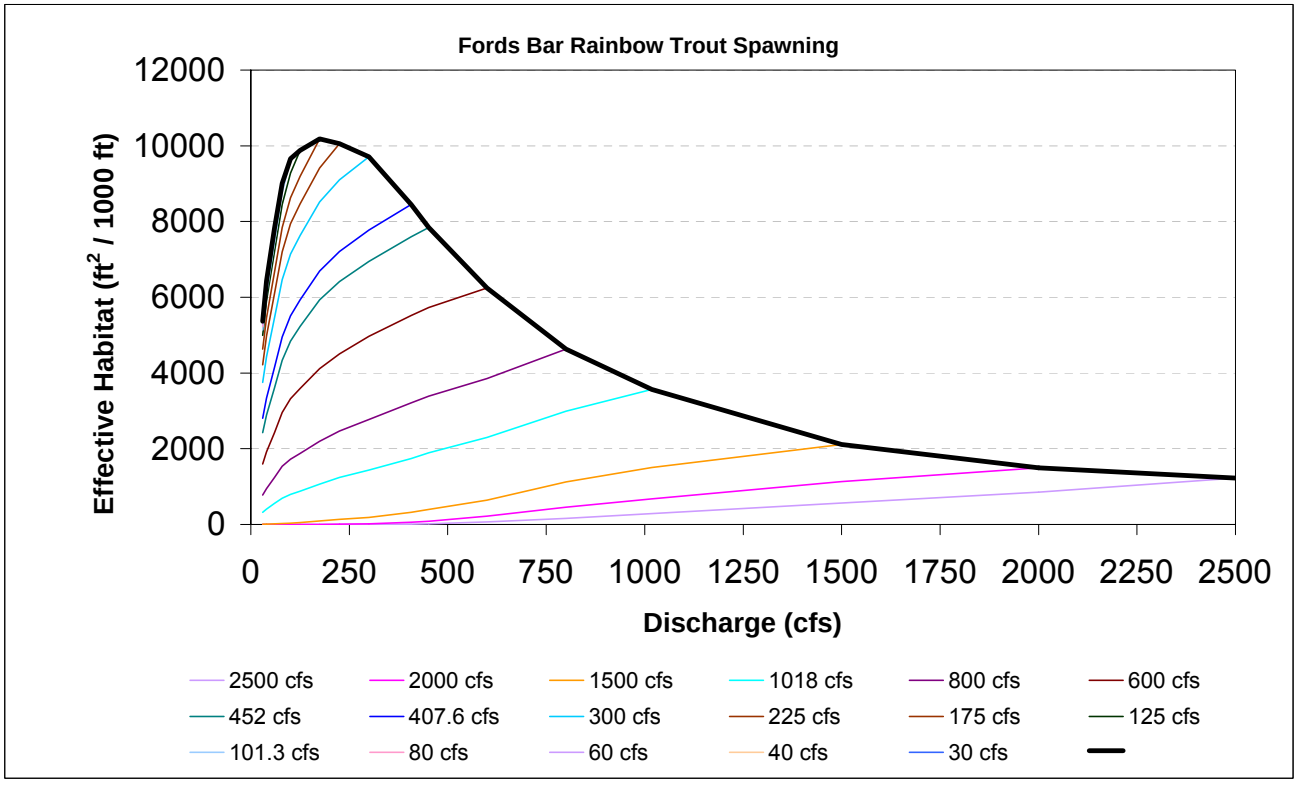


Figure 38. Middle Fork American River MF14.1 Effective Rainbow Trout Incubation Habitat Matrix.

Starting Discharge (cfs)	Ending Discharge (cfs)																	Initial Habitat vs Flow Relationship
	2500	2000	1500	1018	800	600	452	407	300	225	175	125	101	80	60	40	30	
2500 cfs	1227	1014	712	387	217	81	20	13	7	1	1	1	0	0	0	0	0	1227
2000 cfs		1499	1329	918	615	303	109	64	19	4	2	2	0	0	0	0	0	1499
1500 cfs			2111	1813	1465	906	509	392	212	133	83	45	30	22	12	6	3	2111
1018 cfs				3563	3417	2783	2220	2030	1617	1373	1148	924	844	747	597	460	354	3563
800 cfs					4632	4318	3782	3579	3090	2757	2425	2064	1932	1758	1468	1178	950	4632
600 cfs						6242	6031	5880	5389	5004	4580	4091	3895	3621	3145	2629	2206	6242
452 cfs							7839	7778	7428	7016	6558	6015	5788	5456	4865	4172	3587	7839
407.6 cfs								8453	8200	7820	7370	6823	6586	6232	5612	4863	4223	8453
300 cfs									9708	9494	9205	8713	8464	8076	7406	6561	5826	9708
225 cfs										10057	9849	9523	9293	8916	8271	7411	6647	10057
175 cfs											10186	9946	9780	9471	8907	8083	7328	10186
125 cfs												9883	9752	9580	9201	8526	7842	9883
101.3 cfs													9660	9484	9198	8641	8015	9660
80 cfs														9006	8744	8365	7882	9006
60 cfs															7826	7519	7214	7826
40 cfs																6431	6144	6431
30 cfs																	5367	5367

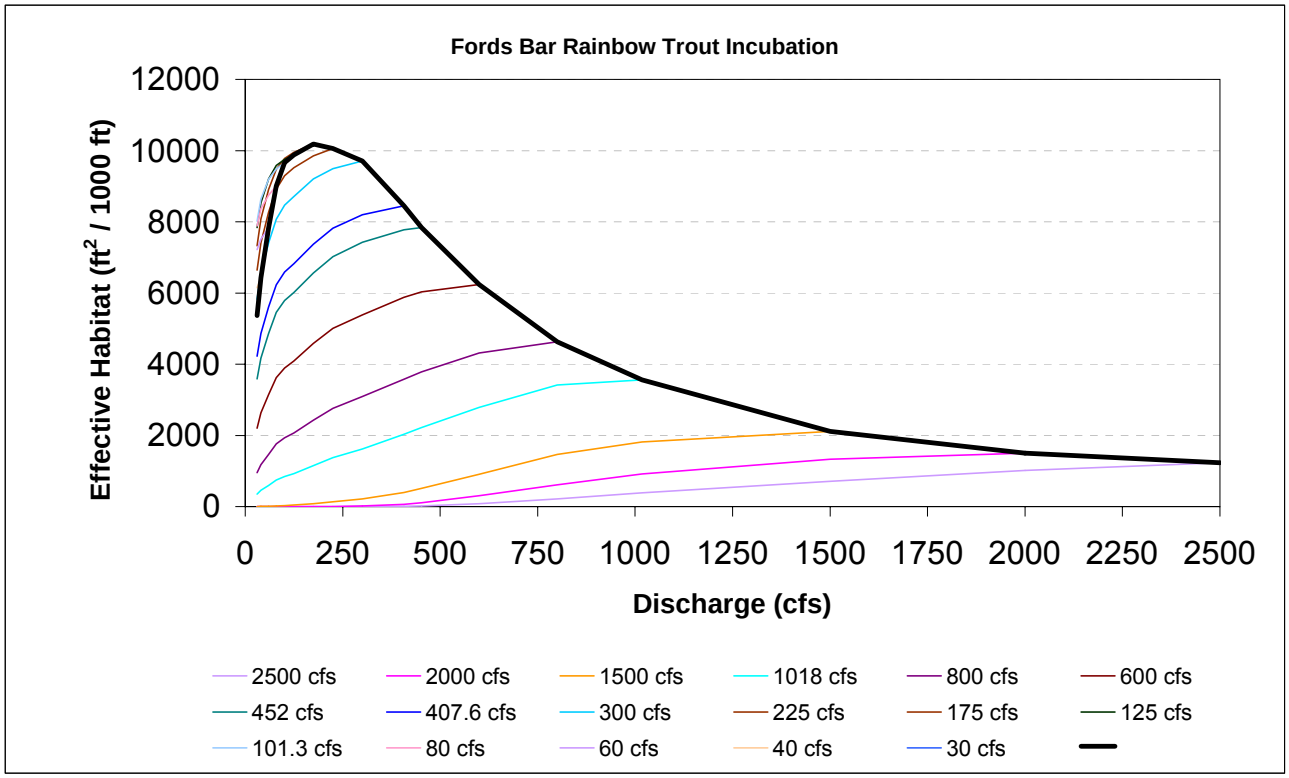


Figure 39. Middle Fork American River MF14.1 Effective Rainbow Trout Depth Sensitivity Spawning Habitat Matrix.

Starting Discharge (cfs)	Ending Discharge (cfs)																	Initial Habitat vs Flow Relationship
	2500	2000	1500	1018	800	600	452	407	300	225	175	125	101	80	60	40	30	
2500 cfs	8801	8024	7446	6609	5950	5198	4789	4569	3909	3489	3033	2538	2370	2137	1749	1417	1196	8801
2000 cfs		10776	10115	9149	8387	7443	6908	6635	5751	5137	4503	3770	3508	3150	2557	2059	1736	10776
1500 cfs			13332	12250	11356	10236	9599	9255	8106	7269	6413	5419	5038	4509	3672	2972	2522	13332
1018 cfs				16318	15248	13951	13193	12781	11375	10278	9166	7792	7218	6475	5361	4334	3651	16318
800 cfs					17392	15972	15168	14730	13228	11981	10764	9235	8561	7682	6357	5099	4264	17392
600 cfs						18030	17171	16700	15127	13799	12507	10822	10036	8977	7373	5857	4844	18030
452 cfs							18720	18155	16513	15141	13797	12003	11146	9967	8170	6436	5303	18720
407.6 cfs								18681	17014	15613	14251	12424	11546	10340	8479	6668	5488	18681
300 cfs									18036	16584	15186	13292	12370	11110	9137	7168	5893	18036
225 cfs										17077	15575	13618	12672	11391	9378	7365	6047	17077
175 cfs											15890	13908	12945	11649	9611	7570	6227	15890
125 cfs												14151	13173	11868	9814	7748	6378	14151
101.3 cfs													13396	12010	9921	7839	6454	13396
80 cfs														12113	10003	7903	6499	12113
60 cfs															10104	7959	6535	10104
40 cfs																8039	6581	8039
30 cfs																	6597	6597

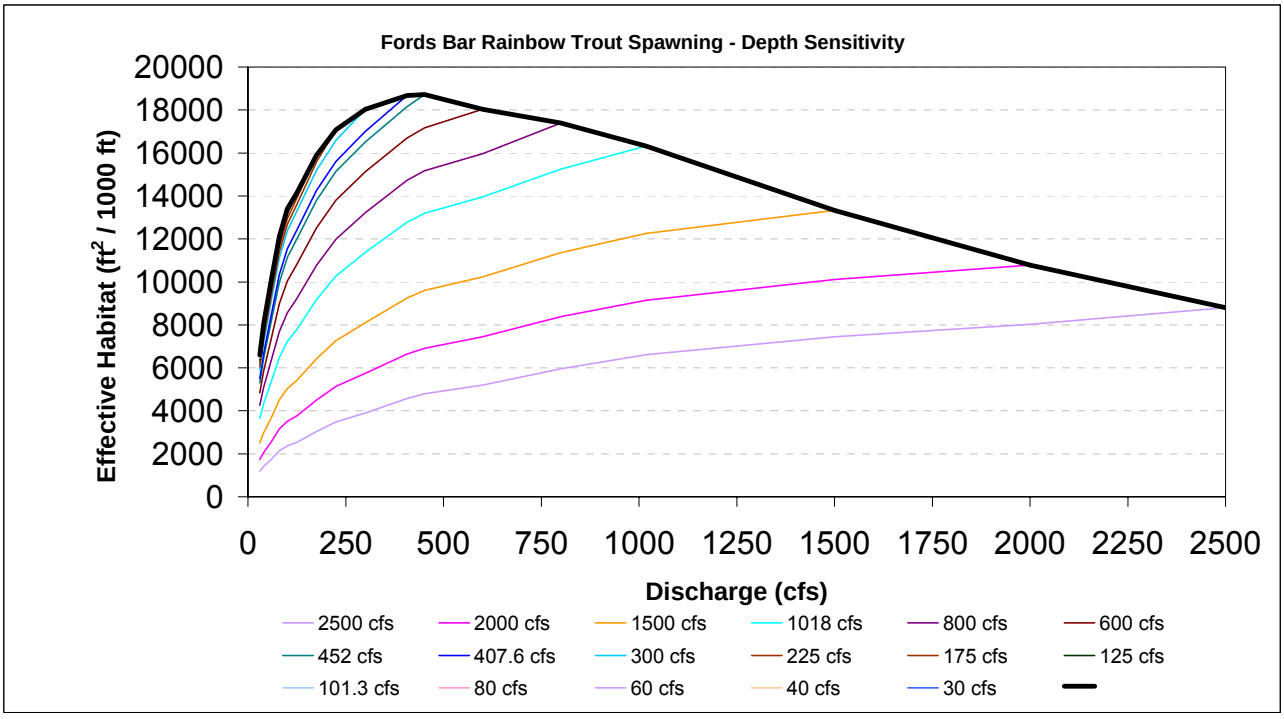


Figure 40. Middle Fork American River MF14.1 Effective Rainbow Trout Spawning Depth Sensitivity Incubation Habitat Matrix.

Starting Discharge (cfs)	Ending Discharge (cfs)																	Initial Habitat vs Flow Relationship
	2500	2000	1500	1018	800	600	452	407	300	225	175	125	101	80	60	40	30	
2500 cfs	8801	8542	8157	7658	7253	6761	6425	6269	5304	4663	4168	3572	3367	3055	2476	1884	1307	8801
2000 cfs		10776	10550	10048	9579	9003	8589	8415	7415	6708	6138	5496	5217	4796	3966	3099	2284	10776
1500 cfs			13332	12945	12467	11757	11271	11062	10025	9275	8638	7933	7605	7092	6100	4972	3830	13332
1018 cfs				16318	16055	15307	14718	14475	13432	12652	11934	11134	10732	10131	8984	7608	6158	16318
800 cfs					17392	16980	16429	16190	15226	14486	13782	12928	12480	11832	10615	9116	7540	17392
600 cfs						18030	17772	17594	16782	16103	15424	14593	14144	13503	12261	10670	9003	18030
452 cfs							18720	18588	18000	17374	16731	15865	15396	14748	13498	11841	10089	18720
407.6 cfs								18681	18194	17631	17014	16198	15755	15109	13867	12229	10480	18681
300 cfs									18036	17642	17249	16564	16165	15546	14401	12855	11183	18036
225 cfs										17077	16696	16189	15823	15270	14289	12889	11350	17077
175 cfs											15890	15432	15172	14744	13933	12698	11324	15890
125 cfs												14151	13829	13576	13019	12059	10930	14151
101.3 cfs													13396	12989	12541	11732	10722	13396
80 cfs														12113	11540	10946	10139	12113
60 cfs															10104	9436	8891	10104
40 cfs																8039	7290	8039
30 cfs																	6597	6597

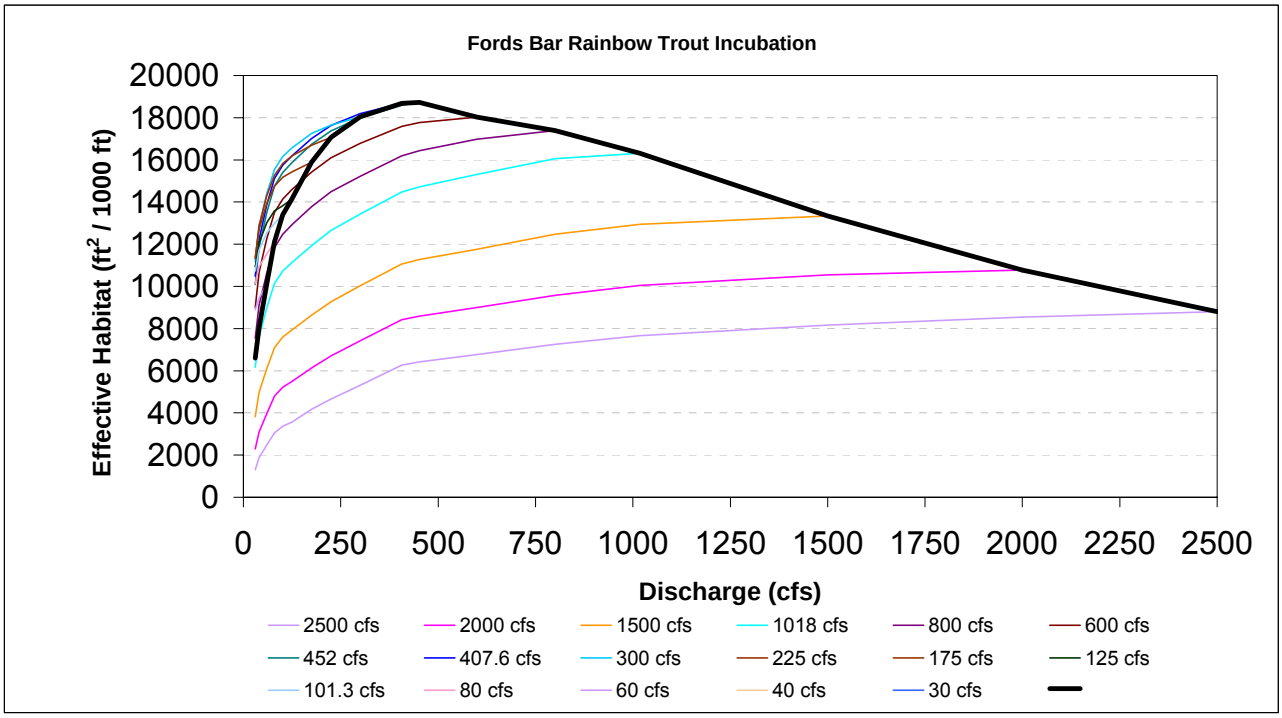


Figure 41. Middle Fork American River MF14.1 Effective FYLF Egg Mass Habitat Matrix.

Starting Discharge (cfs)	Ending Discharge (cfs)																	Initial Habitat vs Flow Relationship
	2500	2000	1500	1018	800	600	452	407	300	225	175	125	101	80	60	40	30	
2500 cfs	668	399	239	74	33	25	20	15	11	7	6	3	2	1	1	1	1	668
2000 cfs		985	601	265	101	48	35	30	22	15	13	8	6	5	3	2	2	985
1500 cfs			1418	655	331	173	96	84	72	41	37	26	24	21	18	13	12	1418
1018 cfs				2451	1254	690	430	351	200	122	99	74	70	63	53	42	40	2451
800 cfs					2857	1457	914	757	490	347	238	160	136	117	97	82	77	2857
600 cfs						3627	2193	1791	1226	959	771	494	381	281	204	150	139	3627
452 cfs							4300	3429	2238	1781	1483	1003	790	619	481	335	259	4300
407.6 cfs								4820	2977	2357	1930	1323	1069	872	712	523	402	4820
300 cfs									5759	4289	3395	2429	2031	1752	1506	1191	1008	5759
225 cfs										6339	4996	3626	3083	2688	2343	1899	1630	6339
175 cfs											7491	5638	4864	4297	3823	3243	2884	7491
125 cfs												9021	7662	6878	6157	5357	4871	9021
101.3 cfs													9970	8923	7931	6984	6395	9970
80 cfs														11687	10256	9016	8291	11687
60 cfs															14472	12565	11548	14472
40 cfs																16476	15066	16476
30 cfs																	17926	17926

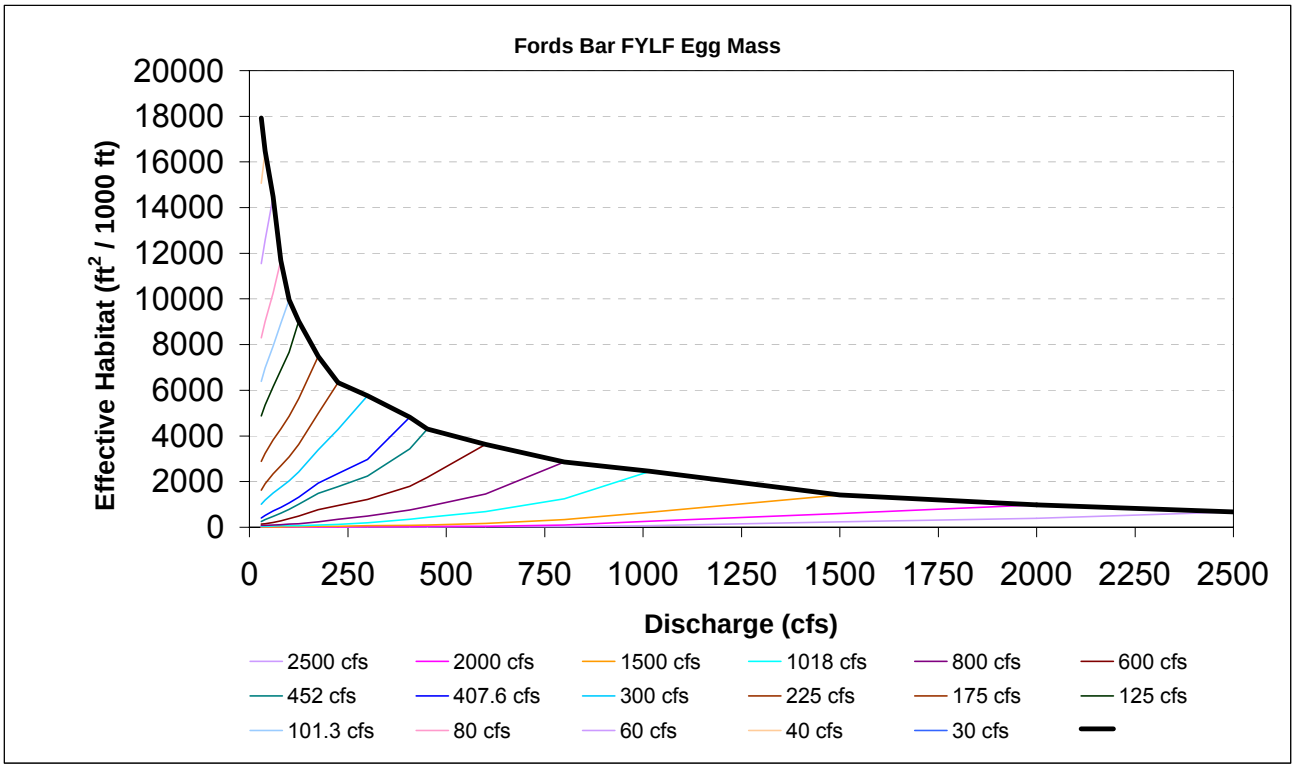


Figure 42. Middle Fork American River MF14.1 Effective FYLF Tadpole Habitat Matrix

Starting Discharge (cfs)	Ending Discharge (cfs)																	Initial Habitat vs Flow Relationship
	2500	2000	1500	1018	800	600	452	407	300	225	175	125	101	80	60	40	30	
2500 cfs	1264	626	263	116	102	87	52	49	18	2	1	0	0	0	0	0	0	1264
2000 cfs		1512	724	274	148	118	77	70	30	11	9	5	4	3	1	1	1	1512
1500 cfs			1858	801	412	189	132	121	71	39	33	25	21	18	15	7	6	1858
1018 cfs				3125	1665	872	468	356	190	125	111	93	86	79	73	59	55	3125
800 cfs					3437	1718	1023	818	440	232	195	163	152	138	128	111	104	3437
600 cfs						4379	2483	1986	1179	793	578	333	282	236	217	186	177	4379
452 cfs							5153	3861	2209	1623	1278	888	639	450	355	285	270	5153
407.6 cfs								5589	3005	2254	1820	1338	1006	752	576	423	381	5589
300 cfs									6639	4732	3849	2918	2333	1906	1558	1157	884	6639
225 cfs										7682	6072	4617	3807	3263	2763	2188	1784	7682
175 cfs											8780	6591	5495	4773	4159	3420	2902	8780
125 cfs												10222	8454	7379	6467	5457	4797	10222
101.3 cfs													10972	9580	8248	6984	6164	10972
80 cfs														12423	10529	8885	7907	12423
60 cfs															14520	12157	10833	14520
40 cfs																16857	14957	16857
30 cfs																	18640	18640

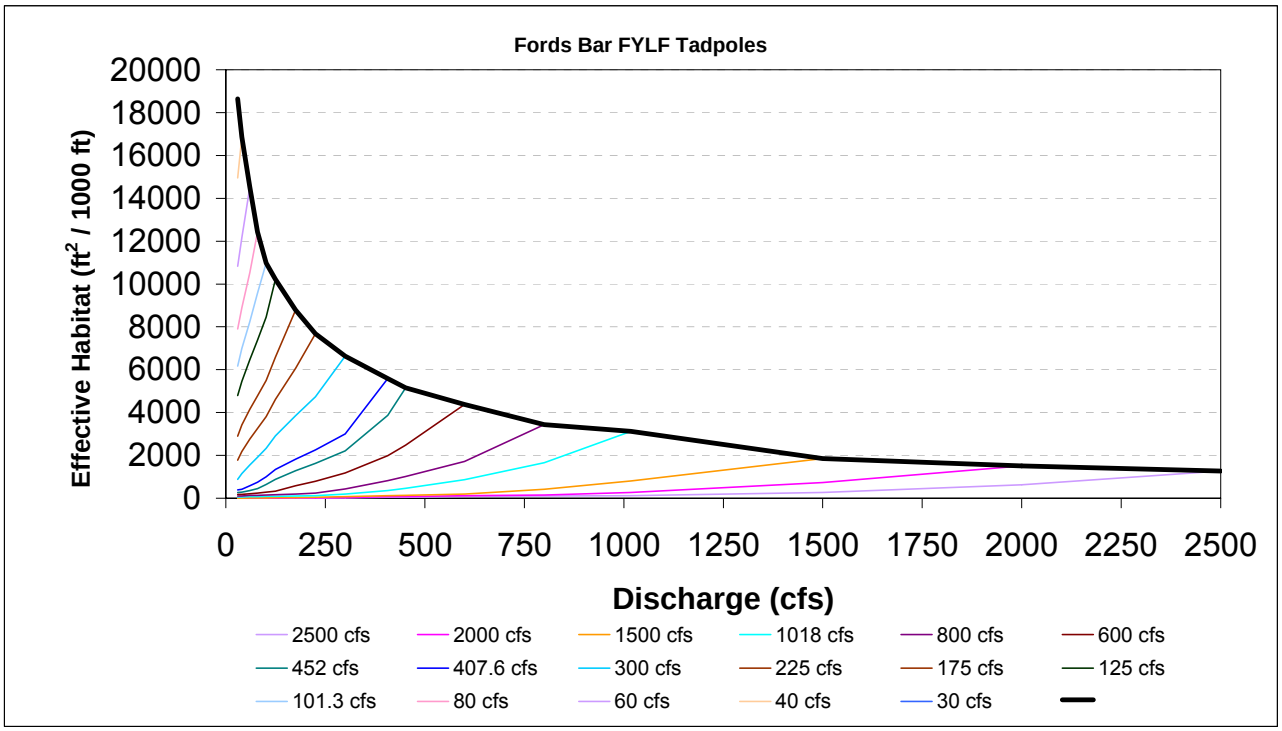
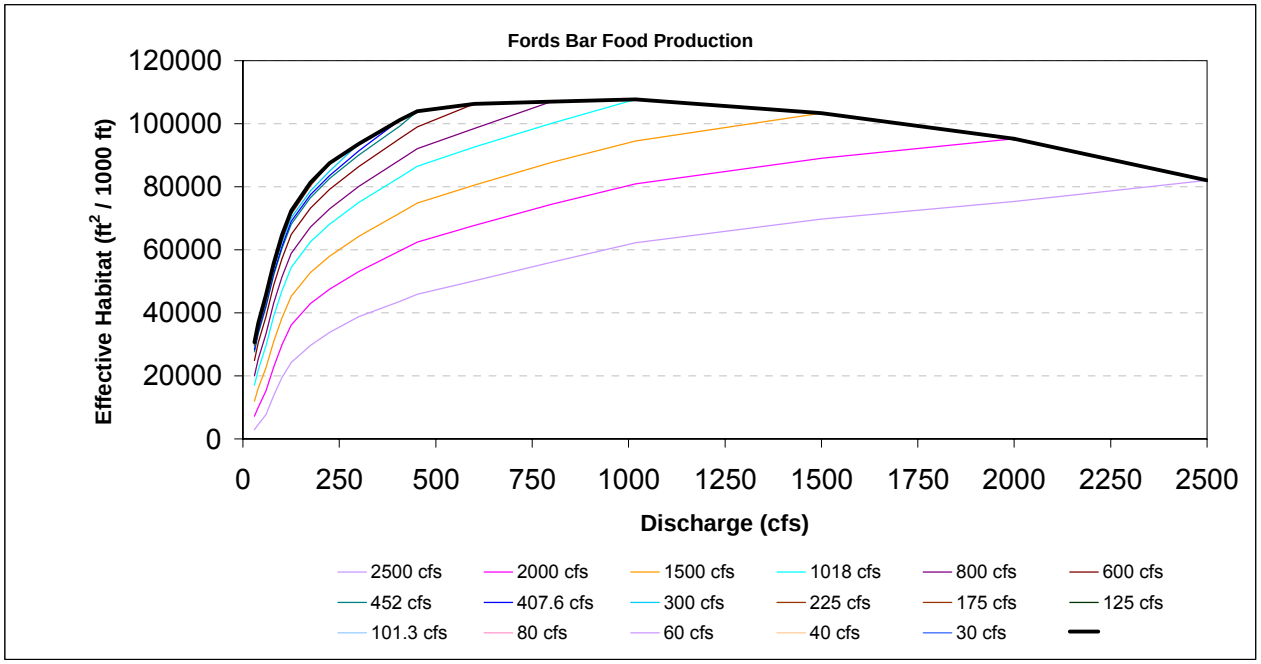


Figure 43. Middle Fork American River MF14.1 Effective Food Production Habitat Matrix

Starting Discharge (cfs)	Ending Discharge (cfs)																	Initial Habitat vs Flow Relationship
	2500	2000	1500	1018	800	600	452	407	300	225	175	125	101	80	60	40	30	
2500 cfs	82078	75359	69776	62262	56087	50125	45857	43702	38740	33765	29679	24269	19538	13730	7722	4545	2991	82078
2000 cfs		95204	89029	80958	74435	67745	62485	59653	53125	47537	42921	36110	29840	22754	15214	10075	7229	95204
1500 cfs			103390	94561	87679	80521	74838	71687	64269	57964	52757	45277	38412	30878	22524	16130	12019	103390
1018 cfs				107696	100096	92600	86482	83084	74980	68155	62509	54447	47017	38860	29565	21977	17005	107696
800 cfs					107013	98431	92093	88533	80072	73036	67171	58926	51346	43003	33328	25361	19976	107013
600 cfs						106258	99025	95302	86446	79204	73224	64848	57162	48698	38772	30516	24884	106258
452 cfs							103990	99247	90064	82633	76597	68134	60383	51856	41834	33422	27649	103990
407.6 cfs								101210	91371	83587	77487	68985	61160	52619	42553	34120	28320	101210
300 cfs									93632	85023	78704	70164	62286	53696	43567	35103	29276	93632
225 cfs										87534	80338	71248	62925	54098	43804	35334	29500	87534
175 cfs											81336	71735	63317	54467	44130	35655	29817	81336
125 cfs												72341	63646	54711	44308	35831	29993	72341
101.3 cfs													64643	55156	44488	35991	30148	64643
80 cfs														55640	44680	36124	30233	55640
60 cfs															45736	36479	30365	45736
40 cfs																36791	30472	36791
30 cfs																	30672	30672



Middle Fork American River at Buckeye Bar MF4.8

Effective Habitat Matrices

Figure 44. Middle Fork American River MF4.8 Effective Rainbow Trout Spawning Habitat Matrix.

Starting Discharge (cfs)	Ending Discharge (cfs)																Initial Habitat vs Flow Relationship
	2500	2000	1500	1018	911	800	600	452	407	300	225	175	125	111	80	60	
2500 cfs	764	315	155	54	34	18	4	2	1	0	0	0	0	0	0	0	764
2000 cfs		658	453	235	186	132	54	19	12	2	1	0	0	0	0	0	658
1500 cfs			1067	728	639	518	333	198	156	83	44	23	8	7	6	3	1067
1018 cfs				2011	1874	1680	1329	1030	921	701	522	376	248	222	115	69	2011
911 cfs					2341	2114	1730	1392	1270	998	766	580	398	359	204	131	2341
800 cfs						2602	2193	1808	1670	1322	1022	793	557	505	306	205	2602
600 cfs							3411	2957	2782	2302	1850	1505	1099	1012	696	519	3411
452 cfs								4076	3878	3282	2705	2241	1678	1563	1147	899	4076
407.6 cfs									4221	3594	2978	2482	1876	1753	1301	1030	4221
300 cfs										4409	3706	3134	2439	2295	1752	1410	4409
225 cfs											4265	3632	2875	2716	2105	1716	4265
175 cfs												4128	3305	3126	2441	2010	4128
125 cfs													3678	3478	2758	2296	3678
111 cfs														3564	2820	2346	3564
80 cfs															3130	2629	3130
60 cfs																2805	2805

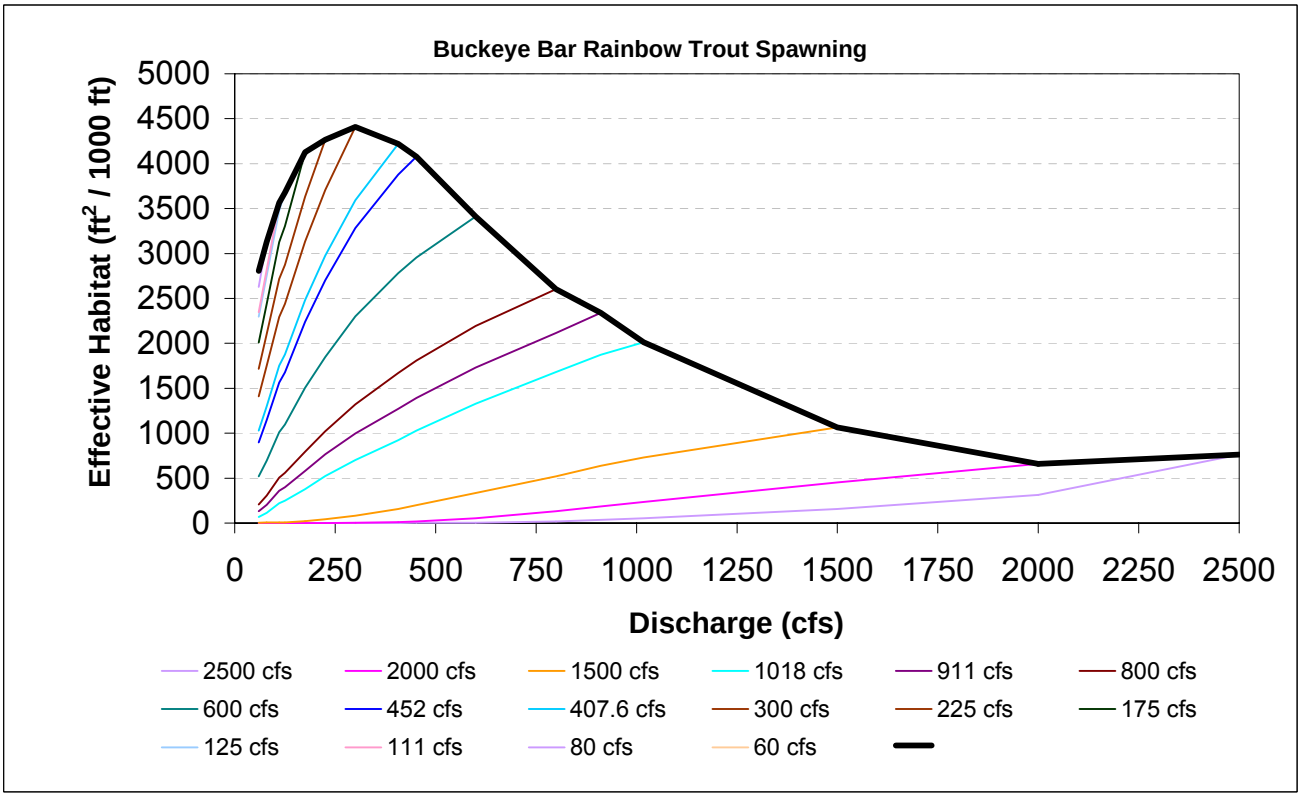


Figure 45. Middle Fork American River MF4.8 Effective Rainbow Trout Incubation Habitat Matrix.

Starting Discharge (cfs)	Ending Discharge (cfs)																Initial Habitat vs Flow Relationship
	2500	2000	1500	1018	911	800	600	452	407	300	225	175	125	111	80	60	
2500 cfs	764	389	167	55	36	15	2	1	0	0	0	0	0	0	0	0	764
2000 cfs		658	496	298	232	150	53	16	7	0	0	0	0	0	0	0	658
1500 cfs			1067	884	776	633	384	222	172	68	30	16	6	6	5	1	1067
1018 cfs				2011	1957	1866	1551	1241	1122	783	536	350	234	221	117	65	2011
911 cfs					2341	2259	1976	1654	1527	1138	824	561	395	374	212	129	2341
800 cfs						2602	2401	2100	1972	1537	1150	805	581	551	337	223	2602
600 cfs							3411	3217	3116	2662	2176	1644	1283	1219	861	658	3411
452 cfs								4076	3990	3691	3219	2552	2075	1982	1495	1208	4076
407.6 cfs									4221	3964	3531	2848	2336	2237	1721	1409	4221
300 cfs										4409	4140	3586	3033	2926	2366	2007	4409
225 cfs											4265	3889	3459	3356	2796	2452	4265
175 cfs												4128	3761	3670	3163	2849	4128
125 cfs													3678	3517	3270	3025	3678
111 cfs														3564	3253	3023	3564
80 cfs															3130	2946	3130
60 cfs																2805	2805

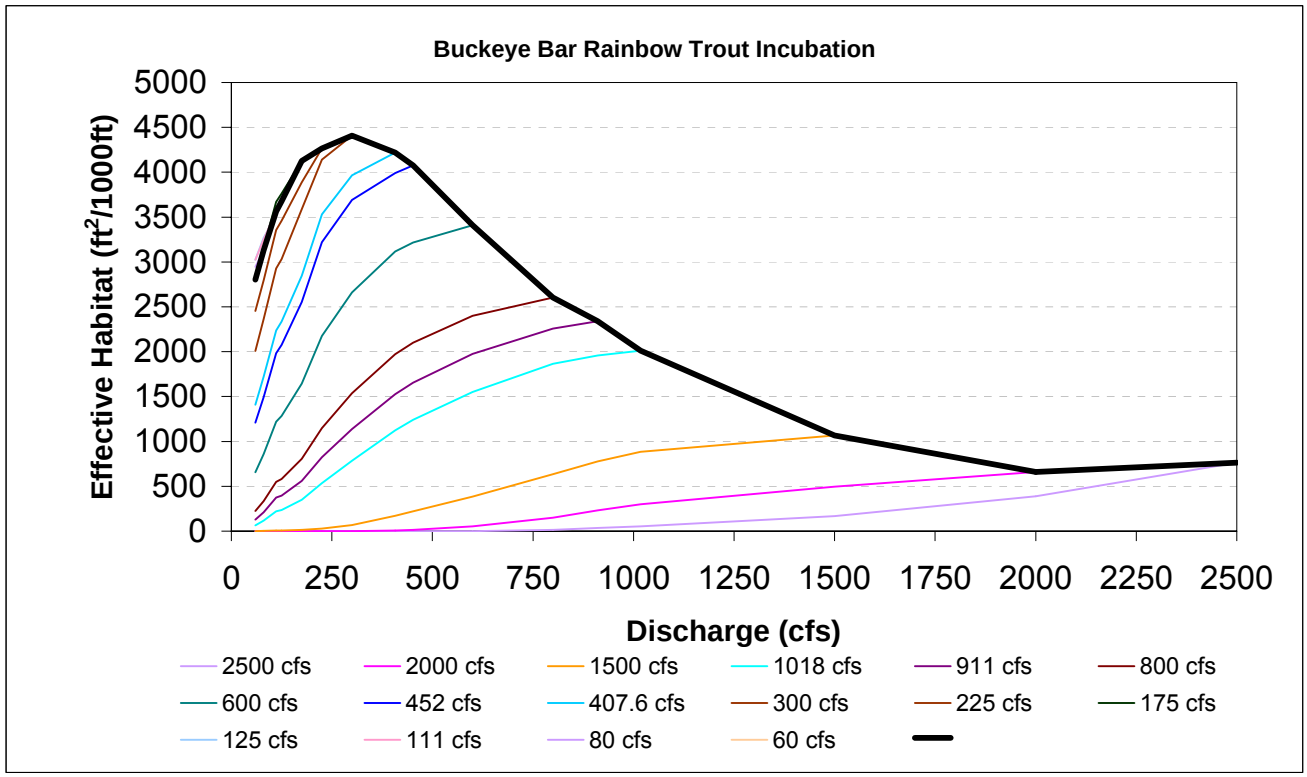


Figure 46. Middle Fork American River MF4.8 Effective Rainbow Trout Depth Sensitivity Spawning Habitat Matrix.

Starting Discharge (cfs)	Ending Discharge (cfs)																Initial Habitat vs Flow Relationship
	2500	2000	1500	1018	911	800	600	452	407	300	225	175	125	111	80	60	
2500 cfs	16998	16140	15535	14483	14030	13506	12495	11126	10650	9150	7702	6327	4903	4544	3476	2878	16998
2000 cfs		18998	18366	17250	16728	16168	15087	13525	12917	10910	9143	7404	5720	5321	4096	3382	18998
1500 cfs			20774	19558	18977	18391	17251	15576	14853	12398	10283	8284	6416	5981	4577	3741	20774
1018 cfs				21107	20474	19876	18684	16932	16178	13474	11143	8981	6898	6432	4860	3955	21107
911 cfs					20840	20095	18894	17130	16373	13644	11293	9102	6978	6505	4905	3991	20840
800 cfs						20688	19332	17478	16711	13926	11518	9282	7096	6611	4978	4048	20688
600 cfs							19820	17933	17144	14296	11834	9547	7261	6757	5084	4125	19820
452 cfs								18284	17462	14531	11966	9642	7329	6819	5134	4161	18284
407.6 cfs									17522	14580	11997	9662	7342	6830	5142	4168	17522
300 cfs										14709	12085	9723	7390	6875	5181	4202	14709
225 cfs											12329	9830	7479	6961	5254	4264	12329
175 cfs												10063	7640	7065	5330	4328	10063
125 cfs													7825	7224	5472	4453	7825
111 cfs														7499	5526	4496	7499
80 cfs															5758	4688	5758
60 cfs																4796	4796

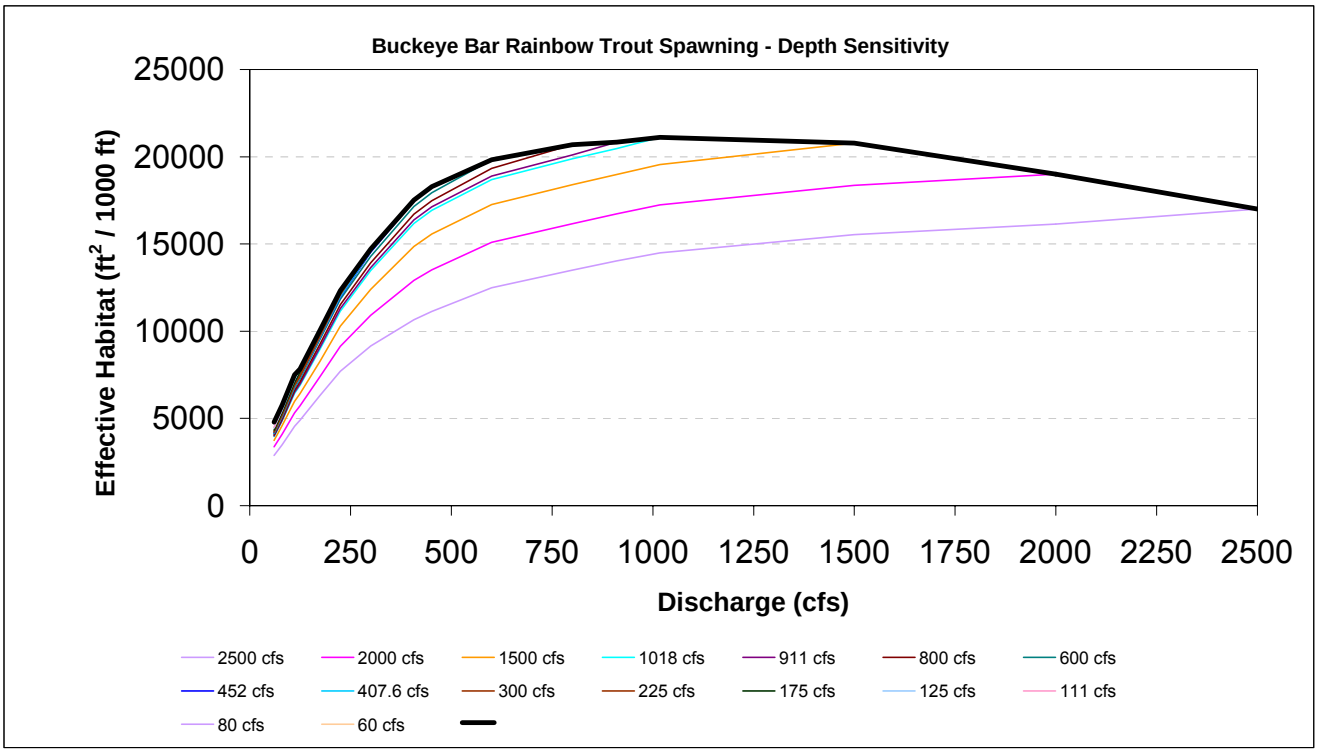


Figure 47. Middle Fork American River MF4.8 Effective Rainbow Trout Spawning Depth Sensitivity Incubation Habitat Matrix.

Starting Discharge (cfs)	Ending Discharge (cfs)																Initial Habitat vs Flow Relationship
	2500	2000	1500	1018	911	800	600	452	407	300	225	175	125	111	80	60	
2500 cfs	16998	16581	16255	15922	15614	15299	14774	14001	13747	12954	11723	10487	8501	7611	5595	3776	16998
2000 cfs		18998	18783	18492	18225	17897	17339	16521	16263	15449	14217	12868	10699	9779	7329	5012	18998
1500 cfs			20774	20541	20288	19969	19404	18590	18324	17486	16278	14805	12476	11543	8800	6135	20774
1018 cfs				21107	20957	20795	20317	19550	19293	18461	17378	15819	13385	12499	9630	6821	21107
911 cfs					20840	20674	20251	19646	19415	18625	17509	15980	13533	12623	9740	6919	20840
800 cfs						20688	20371	19677	19445	18641	17581	16029	13595	12749	9875	7062	20688
600 cfs							19820	19312	19141	18430	17475	16010	13663	12854	10003	7224	19820
452 cfs								18284	18076	17641	16774	15518	13438	12678	9951	7212	18284
407.6 cfs									17522	17054	16252	15075	13106	12393	9808	7163	17522
300 cfs										14709	14051	13181	11638	11061	8975	6821	14709
225 cfs											12329	11486	10393	9960	8170	6353	12329
175 cfs												10063	8980	8563	7219	5869	10063
125 cfs													7825	7012	6198	5225	7825
111 cfs														7499	6105	5101	7499
80 cfs															5758	4379	5758
60 cfs																4796	4796

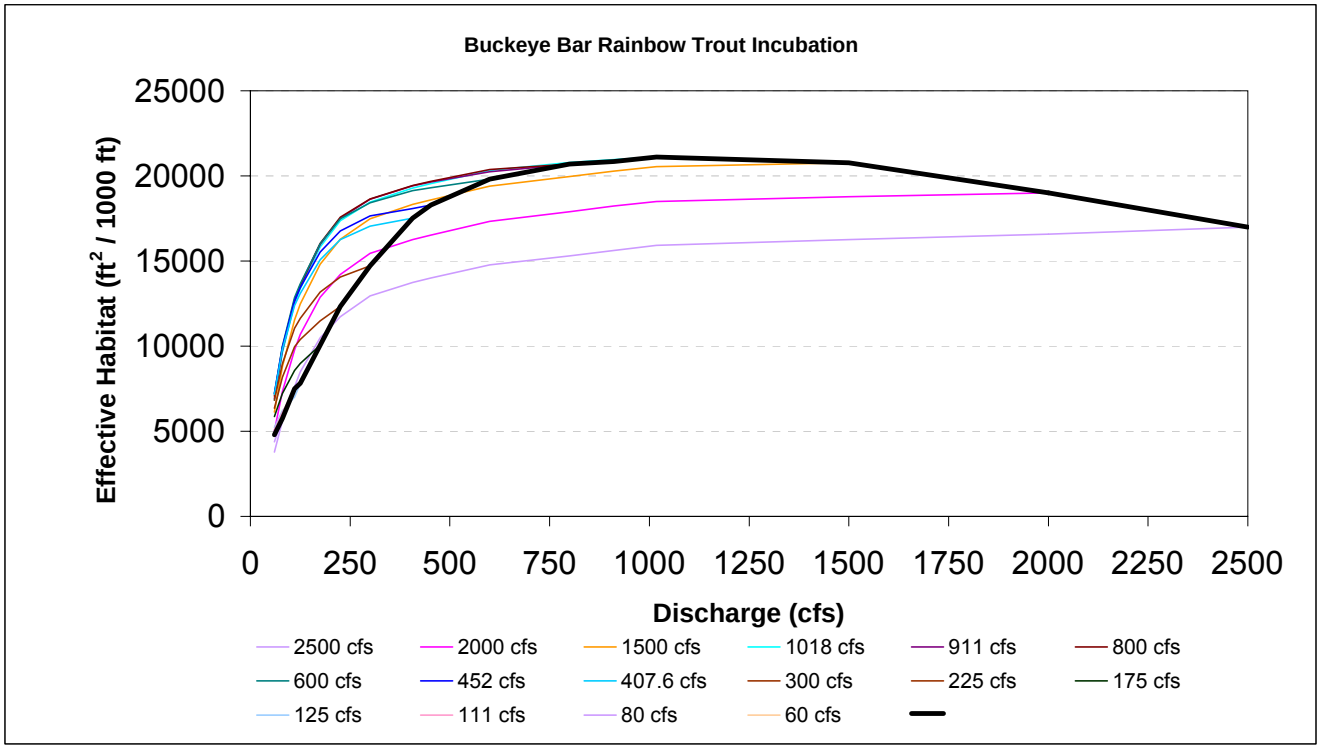


Figure 48. Middle Fork American River MF4.8 Effective FYLF Egg Mass Habitat Matrix.

Starting Discharge (cfs)	Ending Discharge (cfs)																Initial Habitat vs Flow Relationship
	2500	2000	1500	1018	911	800	600	452	407	300	225	175	125	111	80	60	
2500 cfs	3309	1985	751	291	233	195	72	32	26	11	10	5	3	2	1	0	3309
2000 cfs		4029	2641	468	375	321	161	115	106	68	30	10	6	5	4	3	4029
1500 cfs			5145	2676	2028	1489	285	174	157	110	69	44	24	23	14	11	5145
1018 cfs				5202	4260	3518	1913	1159	895	272	157	97	66	63	45	40	5202
911 cfs					4842	4070	2425	1639	1349	684	218	128	78	75	55	48	4842
800 cfs						5036	3165	2134	1775	999	428	192	110	104	78	69	5036
600 cfs							4951	3412	2913	1852	1161	697	295	285	175	127	4951
452 cfs								4493	3855	2541	1755	1186	710	686	433	293	4493
407.6 cfs									4425	2912	2073	1474	970	944	676	461	4425
300 cfs										4380	3105	2297	1671	1637	1284	1029	4380
225 cfs											4894	3525	2577	2518	1951	1618	4894
175 cfs												4615	3450	3383	2714	2306	4615
125 cfs													5088	4919	3899	3344	5088
111 cfs														5790	4412	3747	5790
80 cfs															5898	5116	5898
60 cfs																6413	6413

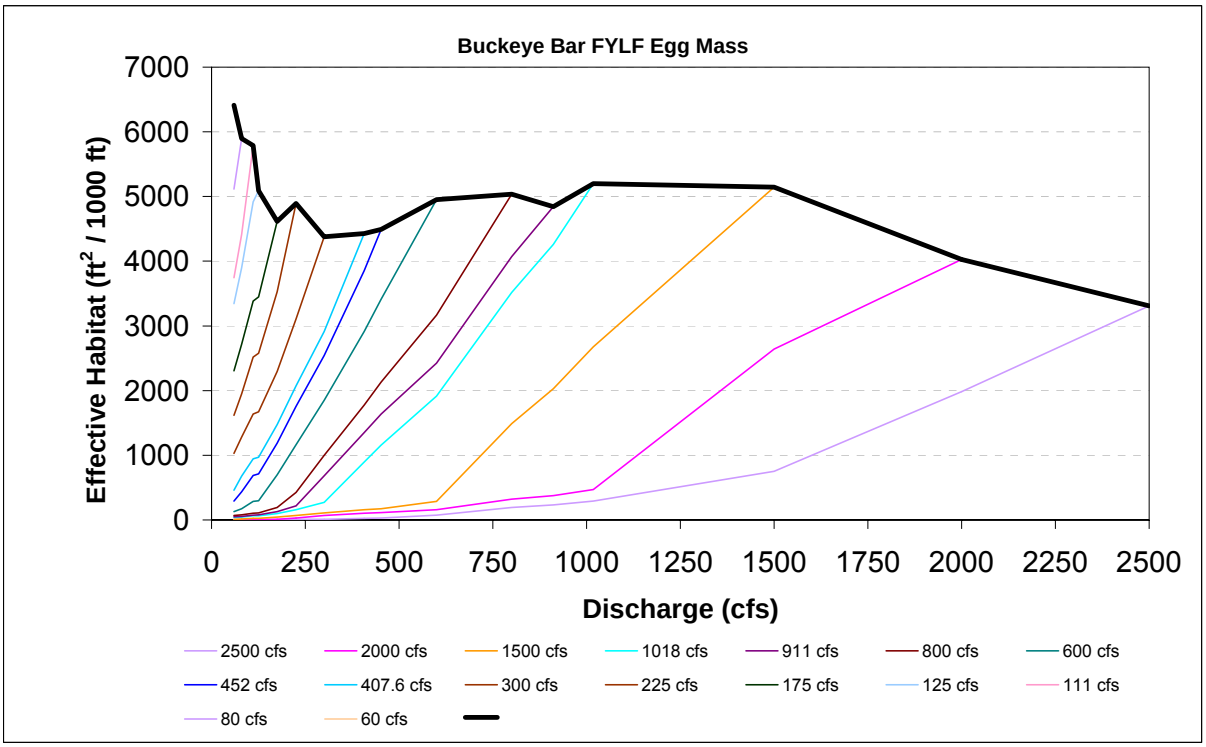


Figure 49. Middle Fork American River MF4.8 Effective FYLF Tadpole Habitat Matrix.

Starting Discharge (cfs)	Ending Discharge (cfs)																Initial Habitat vs Flow Relationship
	2500	2000	1500	1018	911	800	600	452	407	300	225	175	125	111	80	60	
2500 cfs	2892	1385	363	194	167	140	36	10	9	6	5	1	1	0	0	0	2892
2000 cfs		3211	1593	347	298	247	121	76	69	33	9	4	3	2	2	1	3211
1500 cfs			3202	1396	1009	594	213	148	137	92	49	27	15	14	7	6	3202
1018 cfs				4380	3736	3146	1321	568	404	187	127	88	59	58	40	35	4380
911 cfs					4402	3741	1857	1075	898	261	164	116	82	81	58	52	4402
800 cfs						4831	2628	1665	1431	546	227	154	114	111	83	75	4831
600 cfs							4883	3389	3011	1815	942	346	210	187	147	133	4883
452 cfs								4985	4422	2877	1841	1113	540	499	296	231	4985
407.6 cfs									5191	3378	2261	1466	831	783	372	287	5191
300 cfs										5203	3558	2541	1720	1653	974	696	5203
225 cfs											6030	4257	3020	2914	1975	1543	6030
175 cfs												5915	4293	4159	3048	2532	5915
125 cfs													6308	6037	4478	3741	6308
111 cfs														7150	5213	4305	7150
80 cfs															7200	6039	7200
60 cfs																7856	7856

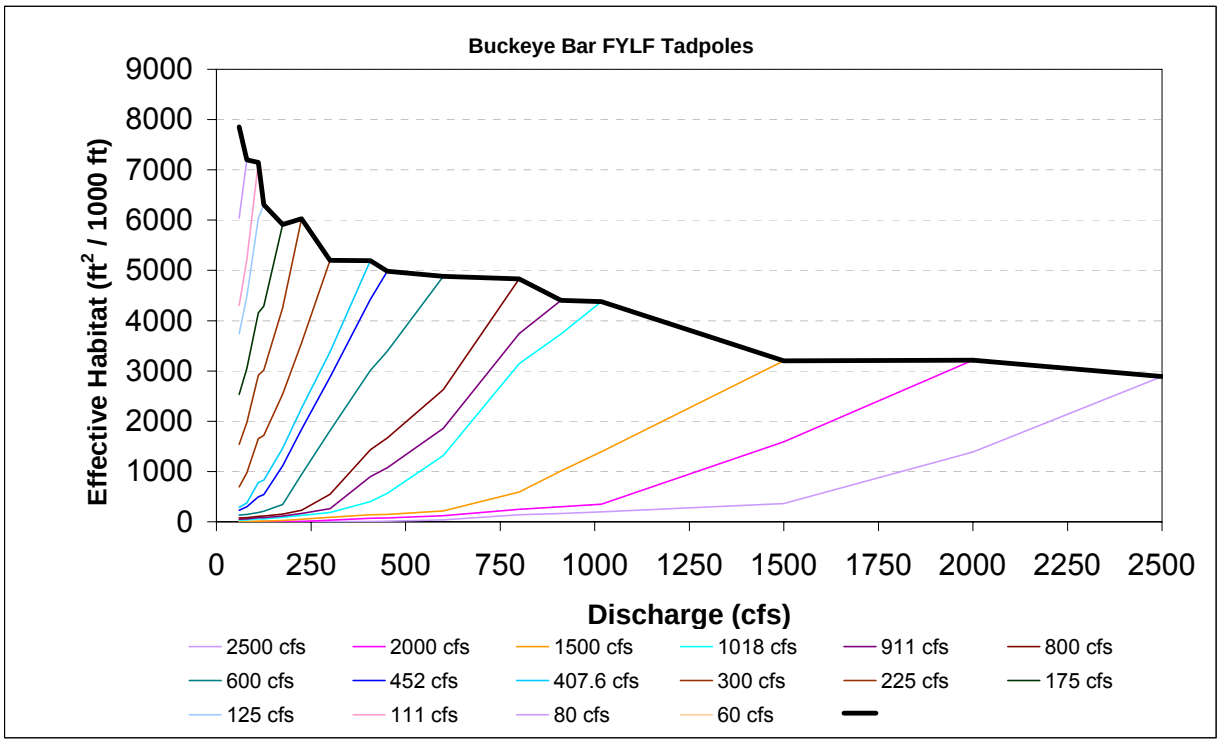


Figure 50. Middle Fork American River MF4.8 Effective Food Production Habitat Matrix

Starting Discharge (cfs)	Ending Discharge (cfs)																Initial Habitat vs Flow Relationship
	2500	2000	1500	1018	911	800	600	452	407	300	225	175	125	111	80	60	
2500 cfs	94386	87594	81657	73449	71476	67927	62685	57763	55986	49601	41510	32140	21472	19456	11620	8995	94386
2000 cfs		94191	87787	79050	76344	72470	66875	61623	59700	52944	44265	34735	23680	21525	12895	9826	94191
1500 cfs			93796	84480	80996	77039	71228	65705	63660	56565	47363	37634	26276	23856	14712	10992	93796
1018 cfs				90811	87111	83130	77198	71498	69391	62012	52457	42567	30896	28153	18513	14424	90811
911 cfs					90275	84841	78856	73096	70966	63477	53820	43885	32162	29394	19681	15524	90275
800 cfs						88394	81700	75458	73306	65736	55946	45899	34050	31203	21425	17163	88394
600 cfs							86248	79817	77655	70029	60062	49796	37700	34759	24891	20513	86248
452 cfs								83693	81189	73163	62928	52443	40149	37164	27224	22789	83693
407.6 cfs									82057	73954	63667	53158	40829	37845	27882	23422	82057
300 cfs										75891	65434	54858	42480	39480	29494	24976	75891
225 cfs											66817	56008	43621	40616	30625	26093	66817
175 cfs												57403	44664	41506	31412	26772	57403
125 cfs													45641	42223	31996	27235	45641
111 cfs														44190	32091	27313	44190
80 cfs															33184	28109	33184
60 cfs																28269	28269