

**Calculated Peak Flows for the Regional Stations (m<sup>3</sup>/s)**

**Tom Creek 435**

Return Period	GEV	3LN	LP3	Wakeby	Weibull	NonParametric	Mean	Flow per unit area
2	18.7	18.8	18.8	19.5	18.7	19.4	19.0	0.044
5	27.4	27.3	27.5	25.9	27.6	29.1	27.5	0.063
10	32.7	32.4	32.4	30.7	32.6	34.9	32.6	0.075
20	37.5	37.1	36.6	36.4	37	40.3	37.5	0.086
50	43.4	42.8	41.2	45.6	42	46.4	43.6	0.100
100	47.5	46.9	44.3	54.1	45.4	49.9	48.0	0.110
200	51.4	50.9	47	64.3	48.6	52.8	52.5	0.121
500	56.1	56.2	50.1	80.7	52.5	56.1	58.6	0.135

**King Creek 13.7**

Return Period	GEV	3LN	LP3	Wakeby	Weibull	NonParametric	Mean	Flow per unit area
2	1.32	1.33	1.34	1.32	1.34	1.36	1.34	0.097
5	1.71	1.68	1.67	1.67	1.7	1.82	1.71	0.125
10	1.95	1.9	1.86	1.94	1.89	2.07	1.94	0.141
20	2.17	2.1	2.04	2.19	2.06	2.26	2.14	0.156
50	2.44	2.35	2.25	2.53	2.25	2.49	2.39	0.174
100	2.63	2.53	2.4	2.78	2.38	2.64	2.56	0.187
200	2.8	2.71	2.55	3.02	2.5	2.76	2.72	0.199
500	3.03	2.94	2.73	3.34	2.65	2.91	2.93	0.214

**Liard River 33400**

Return Period	GEV	3LN	LP3	Wakeby	Weibull	NonParametric	Mean	Flow per unit area
2	1720	1720	1730	1700	1750	1740	1726.67	0.052
5	2250	2240	2240	2270	2280	2340	2270.00	0.068
10	2600	2580	2560	2630	2580	2740	2615.00	0.078
20	2920	2910	2870	2950	2850	3010	2918.33	0.087
50	3330	3320	3250	3310	3150	3240	3266.67	0.098
100	3630	3630	3540	3540	3360	3370	3511.67	0.105
200	3930	3940	3820	3730	3550	3470	3740.00	0.112
500	4320	4350	4200	3960	3790	3600	4036.67	0.121

**Rancheria River 5100**

Return Period	GEV	3LN	LP3	Wakeby	Weibull	NonParametric	Mean	Flow per unit area
2	258	256	256	253	266	264	258.83	0.051
5	370	374	367	380	388	401	380.00	0.075
10	459	469	459	474	466	504	471.83	0.093
20	555	572	562	568	537	569	560.50	0.110
50	700	722	721	690	624	625	680.33	0.133
100	826	849	863	780	686	655	776.50	0.152
200	968	987	1030	870	745	680	880.00	0.173
500	1180	1190	1280	987	819	707	1027.17	0.201

Frances River 12800

Return Period	GEV	3LN	LP3	Wakeby	Weibull	NonParametric	Mean	Flow per unit area
2	666	661	664	678	666	677	668.67	0.052
5	837	830	827	821	839	847	833.50	0.065
10	942	937	930	913	939	950	935.17	0.073
20	1040	1040	1030	1020	1030	1070	1038.33	0.081
50	1150	1170	1150	1170	1130	1180	1158.33	0.090
100	1230	1260	1240	1310	1190	1240	1245.00	0.097
200	1310	1360	1330	1470	1260	1280	1335.00	0.104
500	1400	1480	1440	1720	1340	1330	1451.67	0.113

Geddes Creek 77.8

Return Period	GEV	3LN	LP3	Wakeby	Weibull	NonParametric	Mean	Flow per unit area
2	0.8	0.8	0.8	0.83	0.77	0.84	0.81	0.010
5	1.18	1.2	1.18	1.13	1.2	1.24	1.19	0.015
10	1.47	1.49	1.45	1.37	1.5	1.51	1.47	0.019
20	1.77	1.79	1.73	1.68	1.79	1.99	1.79	0.023
50	2.19	2.21	2.13	2.22	2.16	2.34	2.21	0.028
100	2.54	2.54	2.44	2.76	2.44	2.49	2.54	0.033
200	2.92	2.89	2.78	3.46	2.71	2.61	2.90	0.037
500	3.46	3.39	3.26	4.69	3.06	2.74	3.43	0.044

Teeter Creek 211

Return Period	GEV	3LN	LP3	Wakeby	Weibull	NonParametric	Mean	Flow per unit area
2	3.19	3.1	3.21	3.15	3.31	3.31	3.21	0.015
5	4.94	4.94	4.93	5.14	5.11	5.41	5.08	0.024
10	6.16	6.33	6.08	6.39	6.17	6.61	6.29	0.030
20	7.38	7.77	7.19	7.45	7.1	7.58	7.41	0.035
50	9.04	9.81	8.61	8.63	8.19	8.48	8.79	0.042
100	10.3	11.5	9.67	9.37	8.94	8.98	9.79	0.046
200	11.7	13.2	10.7	10	9.64	9.39	10.77	0.051
500	13.5	15.7	12.1	10.7	10.5	9.85	12.06	0.057

3ln is worst fit of 6 dist.

Sidney Creek 372

Return Period	GEV	3LN	LP3	Wakeby	Weibull	NonParametric	Mean (no 3LN or Wakeby)	flow/area
2	44.6	48.1	43.2	44.5	45.5	45.5	44.7	0.120
5	60.4	60	59.3	63.1	59.5	62.8	60.5	0.163
10	68.8	64.9	69	70	66.5	68.7	68.3	0.183
20	75.7	68.3	77.8	73.8	72.1	73	74.7	0.201
50	83.1	71.7	88.4	76.3	78.2	77.4	81.8	0.220
100	87.8	73.7	95.9	77.3	82.1	80.2	86.5	0.233
200	91.7	75.4	103	77.8	85.6	82.6	90.7	0.244
500	96.1	77.2	112	78.1	89.8	85.6	95.9	0.258

South Big Salmon 515

Return Period	GEV	3LN	LP3	Wakeby	Weibull	NonParametric	Mean	Flow per unit area
2	33.7	33.1	33.4	32.9	35	36.3	34.1	0.066
5	52.5	53.1	51.8	54.2	54.8	59.2	54.3	0.105
10	66.6	69.3	66.3	69.2	67.2	73.1	68.6	0.133
20	81.7	86.8	82	83.3	78.2	84.9	82.8	0.161
50	103	112	105	101	91.6	96.6	101.5	0.197
100	122	134	125	113	101	103	116.3	0.226
200	142	158	146	124	110	109	131.5	0.255
500	171	192	179	139	121	115	152.8	0.297

Boulder 60.9

Return Period	GEV	3LN	LP3	Wakeby	Weibull	NonParametric	Mean	Flow per unit area
2	19.5	20.5	19.1	19.4	20	19.9	20.0	0.237
5	26	25.6	25.5	27	25.6	27.7	26.5	0.315
10	29.5	27.9	29.3	30	28.4	31.2	29.4	0.349
20	32.3	29.6	32.7	31.8	30.6	34	31.5	0.375
50	35.4	31.4	36.7	33	32.9	37	33.6	0.399
100	37.3	32.5	39.5	33.5	34.5	39	34.9	0.415
200	38.9	33.4	42.1	33.8	35.8	40.7	35.9	0.427
500	40.7	34.5	45.4	34	37.5	42.8	37.2	0.442

badfit

bad fit

using 3ln, wkby, wbl, np

180 Mile Creek 81.9

Return Period	GEV	3LN	LP3	Wakeby	Weibull	NonParametric	Mean	Flow per unit area
2	8.16	8.34	8.3	8.29	8.09	8.44	8.3	0.084
5	11.8	12	12	10.9	12	10.8	11.6	0.118
10	14.2	14.3	14.3	13.3	14.5	16.5	14.5	0.148
20	16.6	16.5	16.4	16.3	16.8	18.4	16.8	0.172
50	19.8	19.2	18.9	21.3	19.5	19.4	19.7	0.201
100	22.3	21.3	20.7	26	21.4	19.9	21.9	0.224
200	24.8	23.3	22.4	31.8	23.3	20.3	24.3	0.248
500	28.2	25.9	24.5	41.4	25.6	20.7	27.7	0.283

Partridge

62.1

Return Period	GEV	3LN	LP3	Wakeby	Weibull	NonParametric	MD	Used MD for expected	Flow per unit area
2	9.54	10.3	9.57	9.37	10.2	8.44	8.5	8.5	0.142
5	13.7	14.5	13.8	13.8	14.7	16.3	14.1	14.1	0.236
10	17	17.1	17.2	17.2	17.4	17.8	18.1	18.1	0.303
20	20.6	19.5	20.9	20.9	19.7	19.1	19.3	19.3	0.323
50	26.1	22.4	26.4	26.4	22.4	20.2	23.7	23.7	0.397
100	30.8	24.5	31.1	31.1	24.2	20.7	25.9	25.9	0.434
200	36.3	26.6	36.3	36.3	26	21.1	28.2	28.2	0.472
500	44.6	29.3	44.3	44.3	28.1	21.5	31.1	31.1	0.521

very obvious mixed data - NP fits best of CFA.

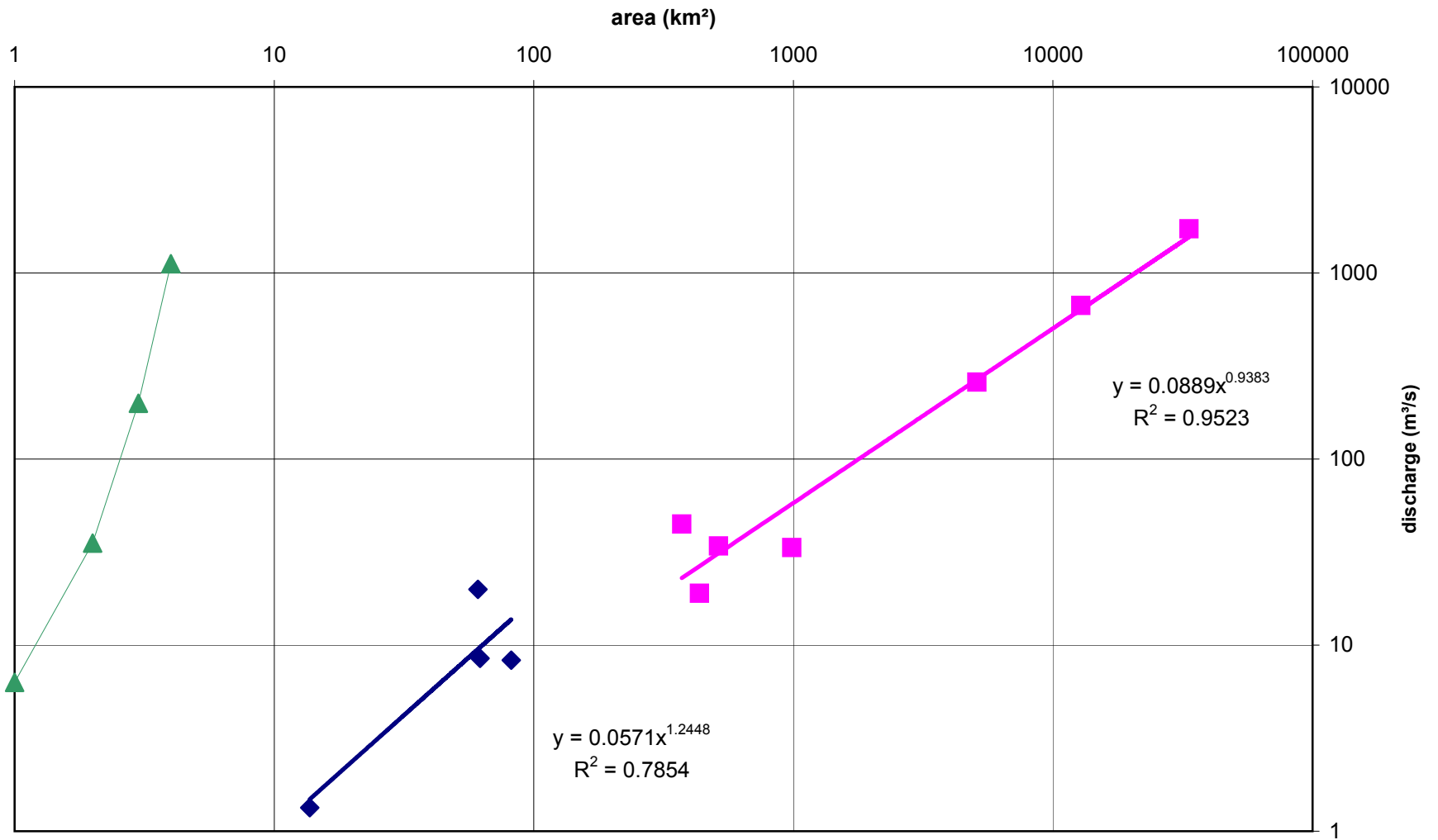
Big Creek

986

Return Period	GEV	3LN	LP3	Wakeby	Weibull	NonParametric	Mean without NP	Flow per unit area		Mean with NP	Flow per unit area
2	34	32.3	32	34.1	34.3	33.5	33.3	0.055		33.4	0.055
5	51.5	52	50.7	51.8	53.6	52.1	51.9	0.086		51.9	0.086
10	65.1	69.8	68.5	65.4	66.6	64.9	67.1	0.111		66.8	0.110
20	79.9	90.7	91	80.1	78.8	90.7	84.1	0.139		85.0	0.140
50	102	124	130	101	94.1	95.2	110.2	0.182		108.1	0.178
100	121	153	170	119	105	97.1	133.6	0.220		128.4	0.212
200	142	187	221	139	116	98.5	161.0	0.265		152.1	0.251
500	174	240	310	167	130	100	204.2	0.336		189.3	0.312

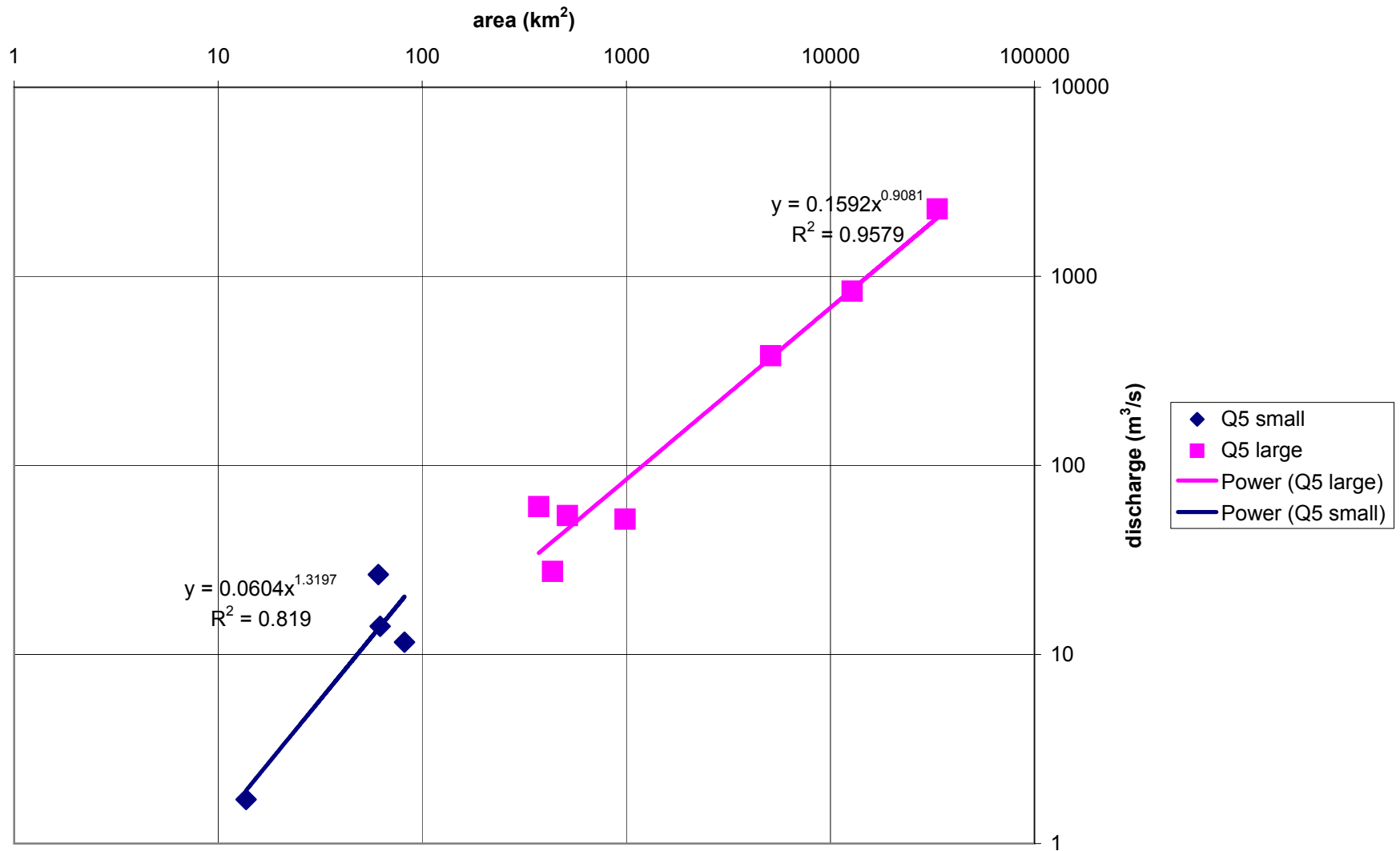
(NP is not a very good fit for Big Creek)

### Q2 Large vs. Small

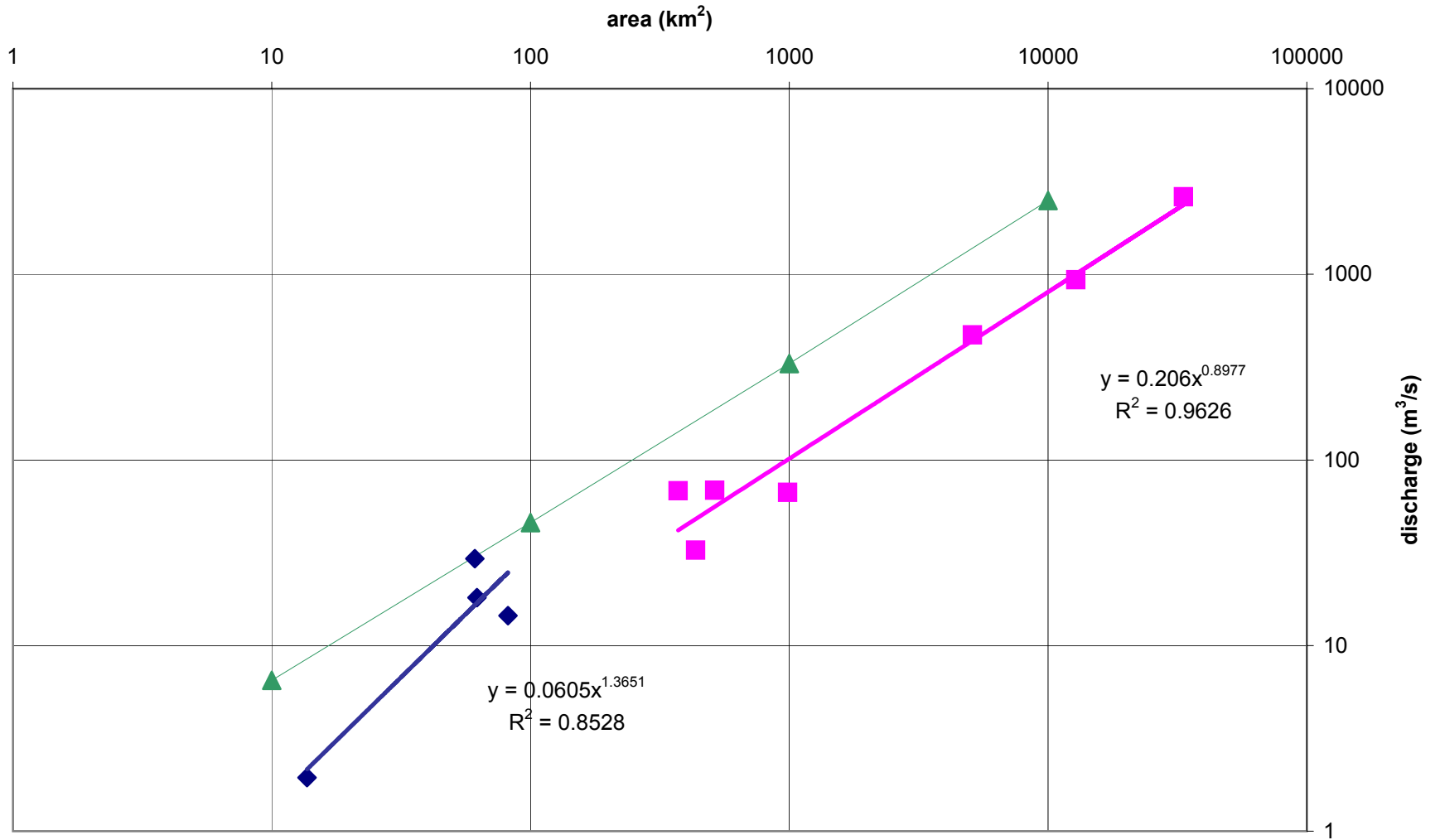


◆ Q2 small    ■ Q2 large    ▲ Beaumont MAF    — Power (Q2 large)    — Power (Q2 small)

### Q5 Large vs. Small

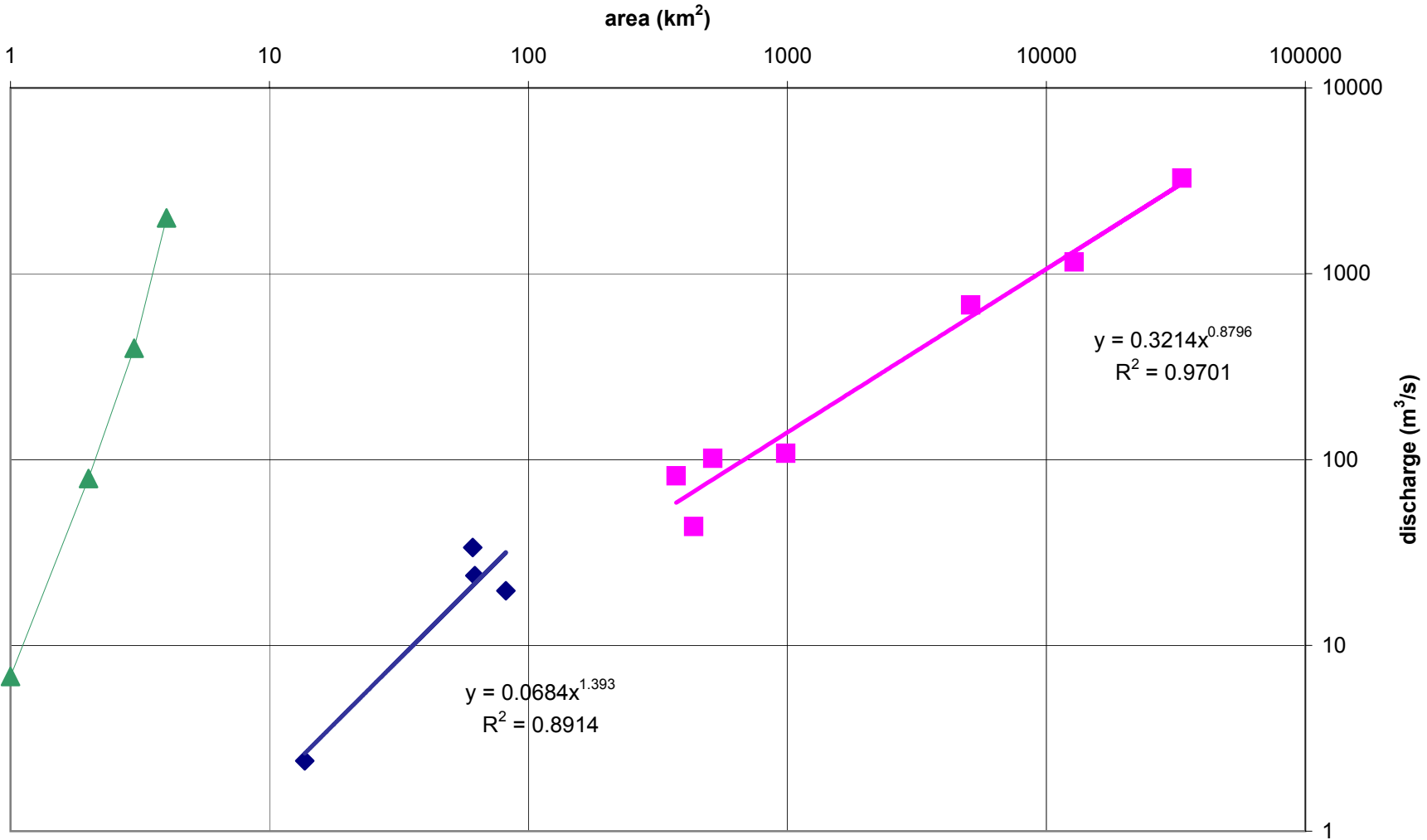


### Q10 Large vs. Small



◆ Q10 small    ■ Q10 large    ▲ Q10 obedkoff estimate    — Power (Q10 large)    — Power (Q10 small)

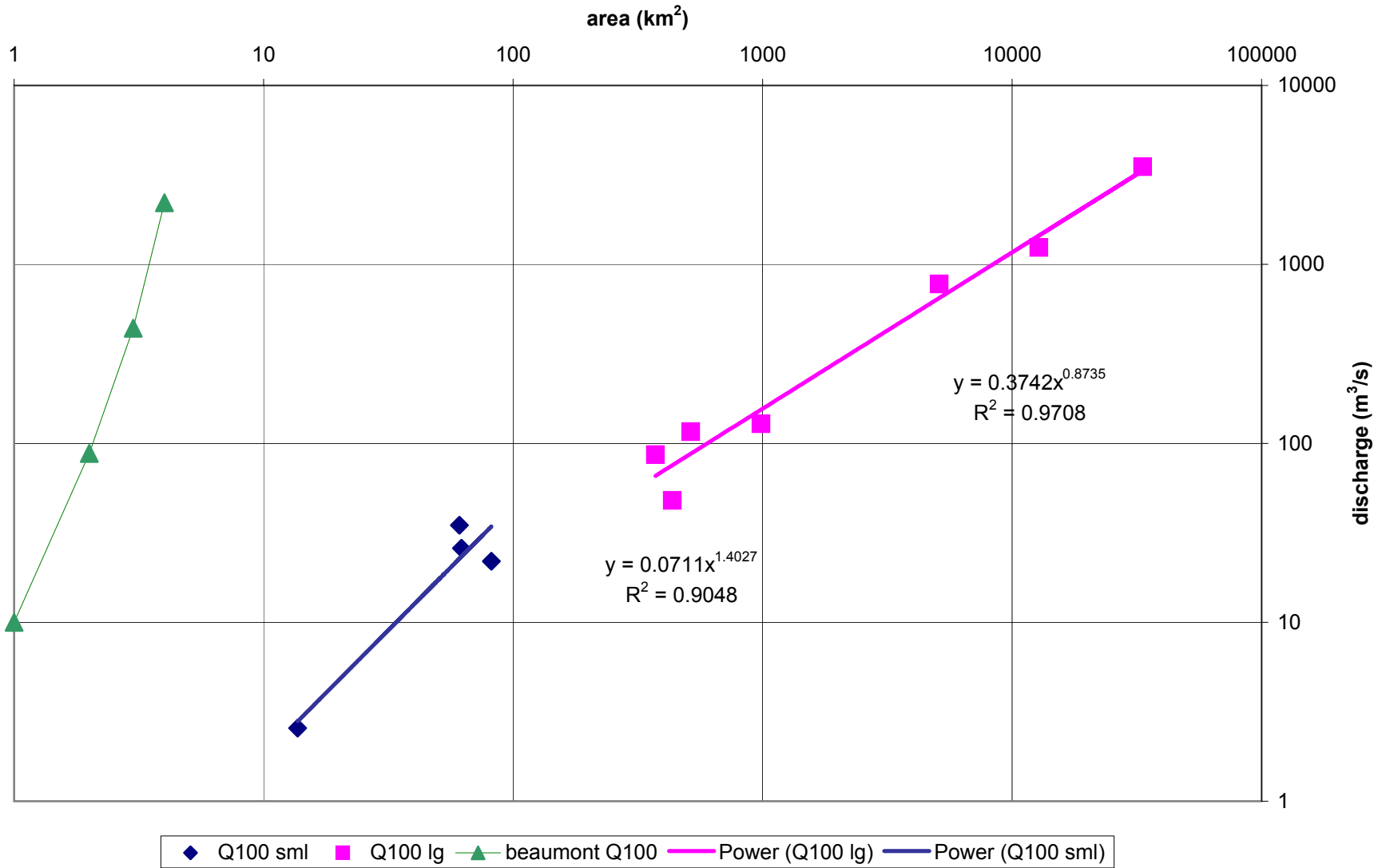
### Q50 Large vs. Small



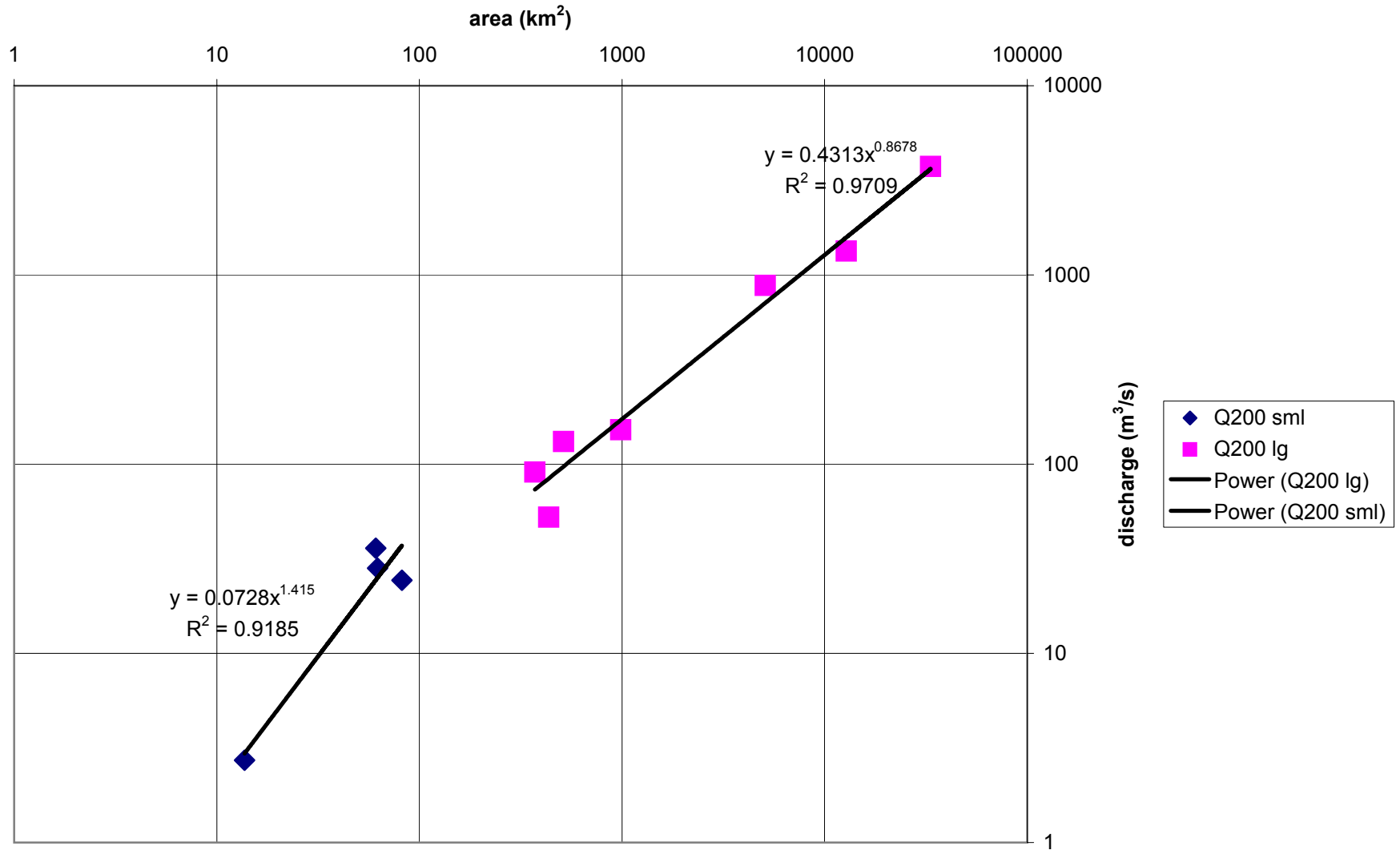
◆ Q50 sm    ■ Q50 lg    ▲ beaumont Q50    — Power (Q50 lg)    — Power (Q50 sm)



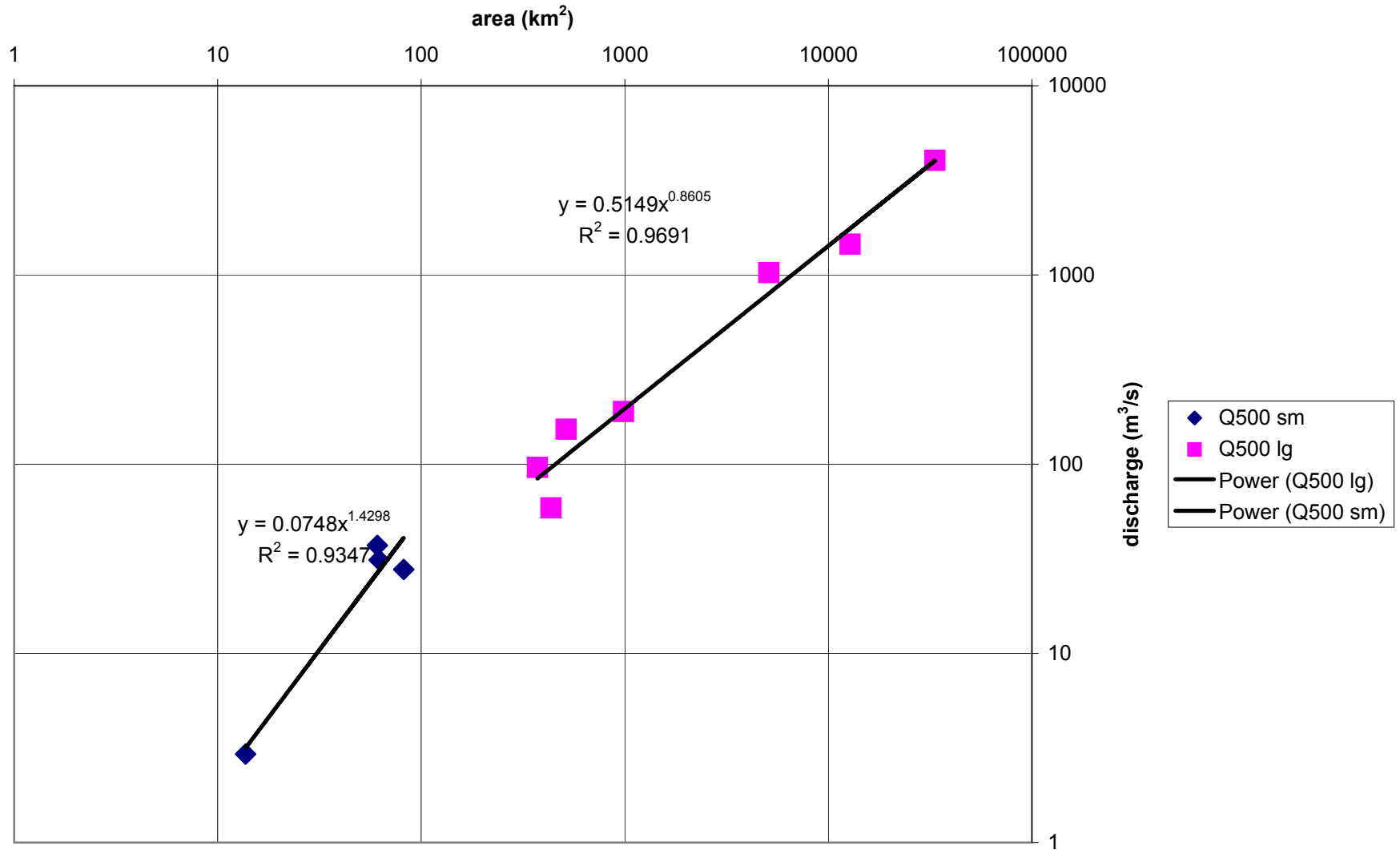
### Q100 Large vs. Small



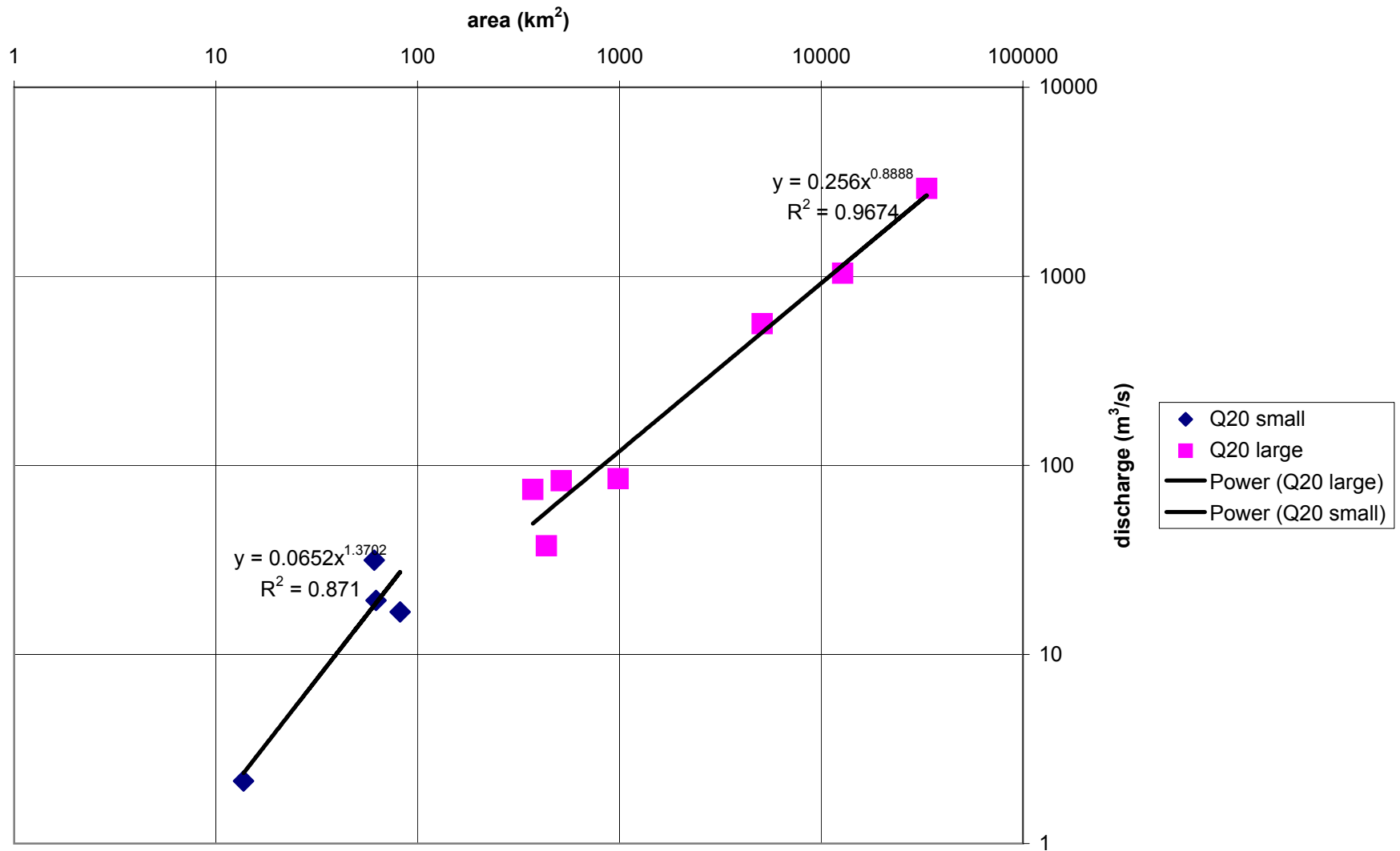
### Q200 Large vs. Small



### Q500 Large vs. Small



### Q20 Large vs. Small



**Mean Flow by Return Period (m<sup>3</sup>/s)**

Stream Name	Area (km <sup>2</sup> )	Q2	Q5	Q10	Q20	Q50	Q100	Q200
Tom	435	19	27.5	32.6	37.5	43.6	48	52.5
King	13.7	1.34	1.71	1.94	2.14	2.39	2.56	2.72
Liard	33400	1727	2270	2615	2918	3267	3512	3740
Rancheria	5100	259	380	472	561	680	777	880
Frances	12800	669	834	935	1038	1158	1245	1335
Big	986	33.4	51.9	66.8	85	108.1	128.4	152.1
Sidney	372	44.7	60.5	68.25	74.65	81.78	86.5	90.73
South Big Salmon	515	34.1	54.3	68.6	82.8	101.5	116.3	131.5
Partridge	62.1	8.5	14.1	18.1	19.3	23.7	25.9	28.2
Boulder	60.9	19.95	26.48	29.38	31.5	33.58	34.88	35.93
180 Mile	81.9	8.3	11.6	14.5	16.8	19.7	21.9	24.3

**Small Watersheds (without Geddes)**

Stream Name	Area (km <sup>2</sup> )	Q2	Q5	Q10	Q20	Q50	Q100	Q200
King	13.7	1.34	1.71	1.94	2.14	2.39	2.56	2.72
Partridge	62.1	8.5	14.1	18.1	19.3	23.7	25.9	28.2
Boulder	60.9	19.95	26.48	29.38	31.5	33.58	34.88	35.93
180 Mile	81.9	8.3	11.6	14.5	16.8	19.7	21.9	24.3

**Large Watersheds (without Teeter)**

Stream Name	Area (km <sup>2</sup> )	Q2	Q5	Q10	Q20	Q50	Q100	Q200
Tom	435	19	27.5	32.6	37.5	43.6	48	52.5
Liard	33400	1727	2270	2615	2918	3267	3512	3740
Rancheria	5100	259	380	472	561	680	777	880
Frances	12800	669	834	935	1038	1158	1245	1335
Big	986	33.4	51.9	66.8	85	108.1	128.4	152.1
Sidney	372	44.7	60.5	68.25	74.65	81.78	86.5	90.73
South Big Salmon	515	34.1	54.3	68.6	82.8	101.5	116.3	131.5

**Obedkoff (2000) maximum expected Q10**

Area	Q10
10	6.5
100	46
1000	330
10000	2500

**Beaumont (1991) estimated MAF, Q50, Q100**

Area	Qmaf	Q50	Q100
10	6.3	6.8	10
100	35.4	79.1	87.9
1000	199.2	397.8	440.6
10000	1120	1994	2208

<b>Q500</b>
58.6
2.93
4037
1027
1452
189.3
95.88
152.8
31.1
37.2
27.7

<b>Q500</b>
2.93
31.1
37.2
27.7

<b>Q500</b>
58.6
4037
1027
1452
189.3
95.88
152.8

**Predicted Peak Flows (m<sup>3</sup>/s) using two equations (< and > 100 km<sup>2</sup>) - REVISED AREAS**

<b>Watershed</b>	<b>Drainage Area (km<sup>2</sup>)</b>	<b>Q2</b>	<b>Q5</b>	<b>Q10</b>	<b>Q20</b>	<b>Q50</b>	<b>Q100</b>	<b>Q200</b>	<b>Q500</b>
W1 Nougha Creek at Lake	209	13.363	20.364	24.927	29.538	34.174	39.788	44.484	51.075
W8 Campbell Creek	7.2	0.667	0.817	0.896	0.975	1.070	1.134	1.189	1.258
W9 Wolverine Creek	1.7	0.111	0.122	0.125	0.135	0.143	0.150	0.154	0.160
W11 Money above Go	194	12.461	19.032	23.315	27.646	32.021	37.282	41.700	47.904
W12 Go above Pup	36.5	5.028	6.963	8.212	9.014	10.264	11.048	11.824	12.814
W13 Pup above Go	7	0.644	0.788	0.862	0.938	1.029	1.090	1.143	1.208
W14 Money below Go	238	15.095	22.915	28.010	33.154	38.281	44.570	49.794	57.117
W15 Hawkowl above Go	9.8	0.978	1.228	1.364	1.487	1.644	1.747	1.840	1.955
W16 Go above Hawkowl	10.2	1.028	1.294	1.441	1.571	1.738	1.848	1.947	2.070
W18 Upper Go	3.5	0.272	0.316	0.335	0.363	0.392	0.412	0.429	0.449
W19 Upper Hawkowl	6.5	0.587	0.714	0.779	0.847	0.928	0.982	1.029	1.087
W21 Nougha @ Highway	287	17.994	27.161	33.137	39.157	45.082	52.488	58.577	67.101
W22 Money above Highway	425	26.009	38.796	47.138	55.508	63.525	73.961	82.356	94.070
W23 Money above Dollar	163	10.583	16.249	19.941	23.683	27.504	32.022	35.852	41.239
W31 Go at Airstrip	4.7	0.392	0.466	0.500	0.543	0.591	0.623	0.650	0.684
W40 Money below Highway	426	26.066	38.879	47.238	55.624	63.655	74.113	82.524	94.261
W44 below tailings dam	1.05	0.061	0.064	0.065	0.070	0.073	0.076	0.078	0.080
W80 compliance point	30.75	4.062	5.553	6.498	7.127	8.084	8.687	9.278	10.028
Bunker	54.5	8.28	11.82	14.19	15.61	17.94	19.39	20.85	22.73
W81	21.1	2.54	3.38	3.89	4.25	4.78	5.12	5.44	5.85