

**Appendix: Ruffe Data Sets and Standard Weight Equations**

TABLE A.1.—Country; specific location; sample size (*n*); minimum (min) and maximum (max) total length (TL); minimum and maximum weight (*W*); and estimated intercept ( $\log_{10}[a]$ ), estimated slope (*b*), and  $R^2$  for  $\log_{10}$  transformed length–weight regressions from 91 ruffe data sets used to develop standard weight ( $W_s$ ) equations. Locations shown without a year were pooled across several years (abbreviations in the location names are as follows: K. = Kanaal, L. = Lake, R. = River, Res. = Reservoir, and W. = Water).

Country	Location (year)	<i>n</i>	TL		<i>W</i>		Length–weight equation		
			Min	Max	Min	Max	$\log_{10}(a)$	<i>b</i>	$R^2$
Austria	Mattsee (2006)	282	55	160	1.9	51.0	−4.98270	3.02415	0.990
	Millstätter See (2007)	124	55	215	2.0	106.7	−4.84594	2.97449	0.992
	Mondsee (2004)	38	90	185	7.0	88.0	−5.42884	3.23821	0.981
	Mondsee (2006)	49	70	189	3.7	87.0	−5.12067	3.08453	0.983
	Neusiedler See (2006)	125	55	119	1.9	20.0	−5.07473	3.06950	0.994
Belgium	Obertrumer See (2006)	261	55	149	1.5	39.0	−4.86747	2.96021	0.985
	K. Van Brugge (2006)	25	69	131	4.2	28.6	−4.87298	2.99694	0.992
	K. Van Dessel (1999)	34	60	117	2.6	22.4	−4.86622	2.99387	0.943
	K. Van Ieper (2002)	147	57	134	2.1	34.1	−4.90320	3.01958	0.956
	Nieuwpoort (2007)	96	62	132	3.2	29.2	−5.23175	3.14119	0.921
Estonia	L. Peipsi (1996)	64	57	131 <sup>a</sup>	2.2	21.4	−4.45834	2.74536	0.971
	L. Peipsi (1997)	59	59	125 <sup>a</sup>	2.1	23.0	−5.13035	3.05463	0.935
	L. Peipsi (1999)	400	63	157 <sup>a</sup>	2.5	44.0	−4.88615	2.95047	0.910
	L. Peipsi (2001)	170	64	131 <sup>a</sup>	2.6	22.9	−4.27777	2.63550	0.940
	L. Peipsi (2002)	68	58	118 <sup>a</sup>	2.2	14.6	−4.36597	2.67063	0.979
Finland	L. Vortsjärvi (2002)	101	59	104 <sup>a</sup>	2.1	12.3	−4.81922	2.91203	0.988
	L. Tuusulanjärvi (1996)	38	82	184	6.0	73.0	−5.33363	3.17309	0.989
France	Albarèdes (2005)	152	55	121	1.9	21.7	−4.87001	2.97616	0.969
	Lacroux (2005)	201	55	133	2.1	32.0	−4.56951	2.83529	0.945
	Rivières-sur-tarn (2005)	86	58	123	2.5	26.0	−4.51678	2.81953	0.982
Germany	Villemur-sur-tarn (2005)	110	55	122	2.1	25.4	−4.50468	2.80426	0.955
	L. Constance (2004)	48	56	96	1.9	12.1	−4.94753	3.01699	0.925
	L. Mueggelsee (1998)	189	61	110	2.6	15.1	−4.68950	2.86920	0.958
	Saidenbach Res. (1999)	32	55	125	1.8	22.2	−5.25967	3.15395	0.986
	Saidenbach Res. (2000)	53	55	125	1.5	24.3	−5.14601	3.09569	0.983
	Saidenbach Res. (2001)	28	55	123	1.8	25.0	−5.12102	3.08653	0.975
	Saidenbach Res. (2002)	30	55	136	1.8	30.5	−5.25417	3.16234	0.983
Hungary	Saidenbach Res. (2003)	88	56	122	2.0	24.8	−5.18931	3.12577	0.976
	L. Balaton (2001)	60	56	113 <sup>a</sup>	1.9	19.5	−4.99272	3.04832	0.958
	L. Balaton (2006)	97	55	125 <sup>a</sup>	1.6	23.2	−5.05412	3.06208	0.917
	Danube R. (Budapest) (1993)	50	75	161	5.3	61.0	−5.27084	3.20066	0.977
	Danube R. (Szigetköz) (1993)	37	69	143	4.2	40.1	−4.97112	3.03468	0.980
	L. Major (2005)	64	82	140	7.9	41.8	−4.74744	2.94113	0.914
	L. Major (2006)	58	67	138	3.2	25.9	−4.98823	3.03216	0.958
Italy	L. Major (2007)	54	66	130	3.8	30.3	−4.92748	3.01712	0.985
	Corbara Res.	41	80	150	6.0	40.0	−4.79958	2.94738	0.933
	L. Piediluco (2002)	43	115	196	17	110	−5.58912	3.33028	0.961
Netherlands	L. Piediluco (2004)	382	80	208	6	110	−5.19615	3.12096	0.923
	L. Piediluco (2005)	100	122	203	22	100	−5.10303	3.09197	0.951
	De Gijster (2002)	40	64	145	3.0	38.3	−5.21708	3.14826	0.989
Norway	Honderd en Dertig (2002)	35	57	160	1.6	50.8	−5.36501	3.21103	0.991
	L. Rødenessjøen (1982)	82	75	165	5.5	40.0	−4.06648	2.54431	0.961
Sweden	Årsjön	51	57	168	1.8	56.2	−4.80898	2.91698	0.981
	Björken (2001)	72	56	135	1.9	24.0	−4.97188	2.98253	0.980
	Flaten	24	87	127	6.0	25.0	−5.48598	3.26289	0.911
	Lien	94	60	131	2.1	19.0	−4.91084	2.93970	0.946
	Skärgölen (2003)	27	59	122	2.3	20.3	−5.16067	3.09865	0.975
	Stora Envättern	31	59	131	2.4	22.0	−4.84600	2.93925	0.970
	Bassenthwaite L. (2006)	76	74	141 <sup>b</sup>	6.0	27.0	−4.49913	2.79174	0.937
UK	Derwent W. (2006)	45	79	128 <sup>b</sup>	6.0	26.0	−5.46620	3.27673	0.909
	Grafham W. (1996)	335	77	175 <sup>b</sup>	6.0	70.0	−5.00635	3.04353	0.952
	Llyn Tegid (1991)	104	81	159 <sup>b</sup>	6.0	43.0	−5.27450	3.16102	0.958
	Llyn Tegid (2003)	21	84	172 <sup>b</sup>	6.0	53.0	−5.59442	3.30173	0.959
	Loch Lomond (2004)	36	77	134	6.0	31.0	−5.03572	3.05184	0.901
	Loch Lomond (2007)	160	76	164	6.0	59.0	−5.12193	3.10906	0.953
	Rutland W. (1996)	63	71	192 <sup>b</sup>	6.0	113.0	−5.12628	3.15131	0.957
Canada	L. Superior (Thunder Bay; 2003)	515	73	212	6.0	125.9	−5.14632	3.13365	0.986
	L. Superior (Thunder Bay; 2006)	29	80	174	5.9	71.2	−5.38871	3.24607	0.979

TABLE A.1.—Continued.

Country	Location (year)	<i>n</i>	TL		<i>W</i>		Length–weight equation		
			Min	Max	Min	Max	$\log_{10}(a)$	<i>b</i>	<i>R</i> <sup>2</sup>
USA	Amnicon R. (1995)	441	55	168	1.6	58.1	−4.98040	3.02688	0.967
	Amnicon R. (1996)	104	56	148	2.1	54.1	−4.81835	2.96791	0.984
	Amnicon R. (1997)	117	55	105	1.9	13.8	−4.63340	2.84721	0.973
	Amnicon R. (2002)	32	55	142	1.5	33.6	−5.35072	3.17307	0.958
	Amnicon R. (2006)	22	61	124	2.3	21.2	−4.79019	2.87939	0.971
	Bad R. (1997)	95	55	174	1.6	70.2	−5.04108	3.08570	0.992
	Bad R. (2001)	26	56	160	1.7	53.4	−5.07302	3.07020	0.990
	Brule R. (1995)	176	57	111	2.2	15.1	−4.72447	2.88385	0.942
	Brule R. (1996)	46	56	120	2.4	23.5	−4.66750	2.87124	0.974
	Brule R. (1997)	42	58	107	2.9	13.9	−4.65250	2.87267	0.957
	Flag R. (2004)	36	55	130	2.3	25.8	−4.89855	2.98958	0.986
	Iron R. (1996)	106	55	150	1.8	40.3	−5.04983	3.07705	0.975
	Iron R. (1997)	78	55	149	1.7	38.9	−4.91599	2.99657	0.978
	Iron R. (2005)	29	77	144	5.4	37.3	−4.88997	2.96752	0.944
	Kakagon R. (1997)	20	56	110	2.2	17.1	−4.58117	2.84154	0.986
	Kakagon R. (1998)	62	85	137	7.8	35.7	−4.98343	3.03236	0.914
	L. Huron (Thunder Bay; 1997)	46	59	99	2.6	11.9	−4.72154	2.91233	0.957
	L. Superior (Chequamegon Bay; 1998)	73	55	137	1.8	32.5	−4.90600	2.98804	0.939
	Ontonagon R. (2002)	25	55	165	2.2	51.2	−4.87533	2.97546	0.989
	Sand R. (1995)	46	60	105	2.6	11.8	−4.48644	2.75512	0.917
	Sand R. (1996)	24	55	122	1.6	23.8	−5.22233	3.15861	0.985
	St. Louis R. (1988)	2,273	69	175	5.0	85.0	−5.00334	3.07453	0.978
	St. Louis R. (1992)	485	55	192	1.9	93.1	−4.72900	2.92147	0.984
	St. Louis R. (1993)	1,591	55	182	1.8	68.8	−4.76026	2.91946	0.985
	St. Louis R. (1994)	1,332	55	176	1.7	55.0	−4.83416	2.95776	0.987
	St. Louis R. (1995)	301	55	162	1.8	55.0	−4.62039	2.84202	0.982
	St. Louis R. (1996)	328	55	154	2.0	47.6	−4.65257	2.85903	0.985
	St. Louis R. (1998)	81	57	141	2.3	35.0	−4.88354	2.97801	0.981
	St. Louis R. (2000)	429	55	147	1.8	38.7	−4.60498	2.83855	0.980
	St. Louis R. (2001)	267	55	143	1.8	36.0	−4.71061	2.98915	0.981
	St. Louis R. (2004)	106	56	174	1.9	82.4	−4.88635	2.98915	0.981
	St. Louis R. (2006)	35	58	118	2.2	21.0	−5.43304	3.25396	0.969
	St. Louis R. (2007)	36	56	134	2.3	24.6	−4.64023	2.83090	0.958

<sup>a</sup> Total length was obtained from observed standard length.<sup>b</sup> Total length was obtained from observed fork length.TABLE A.2.—Country; specific location; sample size (*n*); minimum (min) and maximum (max) total length (TL); minimum and maximum weight (*W*); and estimated intercept ( $\log_{10}(a)$ ), estimated slope (*b*), and *R*<sup>2</sup> for  $\log_{10}$  transformed length–weight regressions from 50 ruffe data sets used to validate standard weight (*W*<sub>S</sub>) equations. Locations shown without a year were pooled across several years (abbreviations in location names are as follows: K. = Kanaal, L. = Lake, R. = River, Res. = Reservoir, and W. = Water).

Country	Location (year)	<i>n</i>	TL		<i>W</i>		Length–weight equation		
			Min	Max	Min	Max	$\log_{10}(a)$	<i>b</i>	<i>R</i> <sup>2</sup>
Austria	Wolfgangsee (2007)	39	56	183	1.4	71.0	−5.04980	3.07162	0.981
Belgium	K. Van Dessel (2003)	129	59	137	2.5	32.6	−4.88363	2.98792	0.945
	K. Van Roeselare (2004)	27	60	122	3.1	23.8	−4.66488	2.88851	0.979
Estonia	L. Peipsi (1998)	472	57	176 <sup>a</sup>	2.3	66.9	−4.66943	2.84956	0.945
	L. Peipsi (2000)	257	55	126 <sup>a</sup>	1.5	26.2	−4.89027	2.95962	0.968
	L. Peipsi (2003)	42	55	121 <sup>a</sup>	1.8	18.2	−4.38830	2.68314	0.980
	L. Vortsjarv (1999)	238	55	114 <sup>a</sup>	1.7	13.5	−4.77084	2.87314	0.967
	L. Vortsjarv (2000)	252	63	123 <sup>a</sup>	2.7	14.8	−4.52564	2.74586	0.949
	L. Vortsjarv (2001)	298	55	121 <sup>a</sup>	1.6	17.6	−4.51660	2.74096	0.902
	L. Vortsjarv (2003)	34	81	123 <sup>a</sup>	5.7	15.0	−4.32023	2.63271	0.915
Finland	L. Äimjärvi	49	60	120	2.0	16.0	−5.22778	3.11226	0.983
France	Cazaux (2005)	634	55	114	1.5	16.5	−4.61438	2.84737	0.971
	Richardménill (2006)	308	71	140	5.1	37.0	−4.58312	2.84312	0.909
Germany	Saidenbach Res. (2004)	270	55	151	1.7	36.7	−5.08665	3.06165	0.974
	Saidenbach Res. (2005)	151	55	143	1.7	29.5	−4.95846	2.99085	0.977
	Saidenbach Res. (2006)	50	57	116	2.0	21.2	−5.11416	3.07906	0.942
	Saidenbach Res. (2007)	59	55	141	1.4	37.3	−5.21442	3.12651	0.982

TABLE A.2.—Continued.

Country	Location (year)	<i>n</i>	TL		<i>W</i>		Length-weight equation		
			Min	Max	Min	Max	$\log_{10}(a)$	<i>b</i>	<i>R</i> <sup>2</sup>
Hungary	L. Balaton (1999)	33	57	107 <sup>a</sup>	1.5	15.8	-5.32163	3.19659	0.951
	L. Balaton (2002)	53	55	124 <sup>a</sup>	1.6	20.6	-5.11512	3.09997	0.959
Italy	L. Piediluco (2001)	215	82	204	5.5	115.0	-5.43621	3.26253	0.975
Norway	L. Bjørkelangen (1982)	66	75	132	5.1	24.0	-4.40985	2.72627	0.958
Poland	Sulejow Res. (2003)	28	55	106	2.1	15.9	-5.20309	3.17198	0.986
Sweden	Älgsjön	39	76	177	4.9	56.0	-4.62402	2.83708	0.982
	Allgjuttern	85	60	151	2.2	33.0	-4.61714	2.80905	0.925
	Remmarsjön	73	86	170	6.0	47.0	-4.88692	2.90322	0.932
	Stensjön	88	75	145	4.0	31.0	-5.37162	3.17838	0.949
	Tärnan	59	56	138	1.9	33.0	-5.09696	3.07050	0.982
UK	Vättern	33	90	171	6.0	65.0	-5.45431	3.22154	0.915
	Bassenthwaite L. (2003)	92	74	129 <sup>b</sup>	6.0	28.0	-4.76806	2.92242	0.931
USA	Bassenthwaite L. (2004)	87	79	132 <sup>b</sup>	6.0	29.0	-4.99200	3.04163	0.931
	Bassenthwaite L. (2005)	105	82	143 <sup>b</sup>	6.0	33.0	-4.99957	3.03086	0.948
	Llyn Tegid (1992)	32	78	140 <sup>b</sup>	6.0	39.0	-4.83983	2.96990	0.949
USA	Amnicon R. (2004)	22	57	109	2.3	16.2	-5.13687	3.11331	0.944
	Flag R. (1995)	160	56	169	2.0	64.0	-5.06374	3.07582	0.988
	Flag R. (1996)	86	55	178	1.9	76.9	-4.98219	3.04466	0.987
	Flag R. (1997)	56	56	165	1.8	63.0	-4.97830	3.04478	0.981
	Flag R. (2002)	144	56	155	1.6	39.2	-5.00123	3.03278	0.978
	Flag R. (2005)	27	60	168	2.4	61.0	-5.07303	3.06869	0.994
	Iron R. (1995)	47	67	141	3.1	33.9	-4.69564	2.88603	0.953
	Iron R. (2002)	134	55	121	1.2	21.2	-5.15433	3.08890	0.900
	Iron R. (2004)	34	57	120	2.4	22.5	-4.82683	2.95485	0.976
	L. Huron (Thunder Bay; 1996)	30	72	142	4.2	35.6	-4.97624	3.03891	0.979
	L. Huron (Thunder Bay; 1998)	43	63	104	3.3	16.9	-4.58596	2.84075	0.933
	L. Huron (Thunder Bay; 1999)	112	82	152	7.3	43.1	-4.44818	2.77430	0.950
	St. Louis R. (1989)	1,411	55	176	1.7	80.8	-4.98605	3.05867	0.987
	St. Louis R. (1990)	457	55	207	2.1	125.9	-4.93698	3.03622	0.989
	St. Louis R. (1997)	299	55	163	1.6	48.3	-4.63004	2.85004	0.975
St. Louis R. (1999)	266	55	170	1.9	63.9	-4.83335	2.95576	0.980	
St. Louis R. (2002)	160	55	141	1.7	35.3	-4.83789	2.95389	0.980	
St. Louis R. (2003)	94	55	156	1.5	54.2	-4.90613	3.00449	0.980	

<sup>a</sup> Total length was obtained from observed standard length.<sup>b</sup> Total length was obtained from observed fork length.