

**APPENDIX H**

**HYDROLOGY AND WATER QUALITY**

**BASELINE DATA**

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**Table H.1. Water Quality Analyses at Dutdere Flow Gauging Station (EIE, No: 2321)**

Sampling Date	Temperature (°C)	pH	EC × 10 <sup>6</sup> (µmhos/cm)	Cations (meq/L)			Anions (meq/L)				Boron (ppm)	French Hardness	Total salt (ppm)	SAR
				Na	K	Ca+Mg	CO <sub>3</sub>	HCO <sub>3</sub>	Cl	SO <sub>4</sub>				
24.09.03	13	8.14	127	0.08	0.000	1.19	0.10	0.90	0.10	0.17	0.21	6.0	81	0.10
23.10.03	9	7.81	136	0.13	0.000	1.23	0.00	0.94	0.11	0.31	0.15	6.2	87	0.17
19.11.03	7	7.95	149	0.08	0.000	1.41	0.00	1.04	0.11	0.34	0.06	7.1	95	0.10
16.12.03	6	8.06	190	0.13	0.000	1.77	0.12	1.25	0.11	0.42	0.09	8.9	122	0.14
21.01.04	2	8.03	181	0.13	0.000	1.69	0.10	1.23	0.13	0.36	0.01	8.5	116	0.14
18.02.04	2	8.01	210	0.21	0.000	1.91	0.00	1.30	0.16	0.66	0.04	9.6	134	0.21
10.03.04	6	8.04	190	0.13	0.000	1.78	0.08	1.36	0.13	0.34	0.07	8.9	122	0.14
20.04.04	5	7.99	150	0.08	0.000	1.44	0.00	1.22	0.09	0.21	0.03	7.2	96	0.09
26.05.04	7	7.85	122	0.04	0.000	1.22	0.00	1.16	0.10	0.00	0.01	6.1	78	0.05
16.06.04	7	7.69	94	0.04	0.000	0.87	0.00	0.80	0.10	0.01	0.09	4.4	60	0.06
22.07.04	14	7.92	134	0.04	0.000	1.28	0.00	1.14	0.09	0.09	0.04	6.4	86	0.05
25.08.04	17	7.91	144	0.08	0.000	1.37	0.00	1.09	0.10	0.26	0.02	6.9	92	0.10
Average Values for the Sampling Period (1995-2004)														
Jan	4	8.0	191	0.18	0.015	1.710	0.068	1.21	0.166	0.47	0.06	8.6	122.112	0.201
Feb	3	8.1	202	0.19	0.014	1.846	0.056	1.26	0.180	0.55	0.08	9.2	129.472	0.196
Mar	6	8.1	192	0.16	0.014	1.760	0.074	1.32	0.142	0.40	0.10	8.8	123.136	0.176
Apr	8	7.9	139	0.10	0.013	1.279	0.020	1.06	0.112	0.20	0.09	6.4	88.896	0.129
May	10	8.0	120	0.07	0.011	1.172	0.074	1.00	0.109	0.07	0.09	5.9	76.736	0.089
Jun	10	8.0	127	0.06	0.009	1.244	0.040	1.10	0.114	0.06	0.11	6.2	81.472	0.075
Jul	12	8.0	139	0.08	0.017	1.330	0.060	1.13	0.097	0.14	0.10	6.6	89.024	0.105
Aug	17	8.0	152	0.11	0.011	1.412	0.076	1.13	0.106	0.23	0.08	7.1	97.138	0.129
Sep	11	8.0	161	0.13	0.016	1.514	0.064	1.18	0.109	0.31	0.08	7.572	102.756	0.145
Oct	12	8.0	165	0.12	0.014	1.516	0.033	1.18	0.116	0.32	0.11	7.581	105.440	0.141
Nov	8	8.0	166	0.18	0.013	1.490	0.029	1.12	0.120	0.41	0.09	7.450	106.382	0.200
Dec	5	8.1	289	0.73	0.026	2.318	0.129	1.65	0.502	0.79	0.25	11.589	184.676	0.483

Table H.2. Water Quality Analyses at Ishan Koprusu Flow Gauging Station (EIE, No: 2323)

Sampling Date	Temperature (°C)	pH	EC × 10 <sup>6</sup> (µmhos/cm)	Cations (meq/L)			Anions (meq/L)				Boron (ppm)	French Hardness	Total salt (ppm)	SAR
				Na	K	Ca+Mg	CO <sub>3</sub>	HCO <sub>3</sub>	Cl	SO <sub>4</sub>				
19.09.03	12	8.40	636	2.04	0.02	4.40	0.38	3.31	1.09	1.68	0.68	22.0	407	1.38
22.10.03	10	8.49	593	2.00	0.02	4.07	0.52	3.06	0.90	1.61	0.73	20.4	380	1.40
19.11.03	7	8.39	612	2.08	0.02	4.04	0.32	3.14	1.01	1.67	0.62	20.2	392	1.46
17.12.03	6	8.30	584	1.65	0.00	4.37	0.32	3.50	0.76	1.44	0.45	21.9	374	1.12
21.01.04	4	8.04	739	2.52	0.02	4.97	0.10	4.01	0.65	2.75	0.66	24.9	473	1.60
19.02.04	4	8.42	646	2.43	0.02	4.04	0.30	2.81	0.62	2.76	0.68	20.2	413	1.71
10.03.04	6	8.33	433	1.30	0.02	3.18	0.16	2.52	0.27	1.55	0.26	15.9	277	1.03
20.04.04	6	8.04	386	1.04	0.00	3.04	0.06	2.69	0.21	1.12	0.19	15.2	247	0.84
26.05.04	11	8.18	324	0.78	0.00	2.57	0.24	2.04	0.35	0.72	0.27	12.9	207	0.69
27.07.04	11	8.29	497	1.39	0.00	3.64	0.44	2.66	0.67	1.26	0.21	18.2	318	1.03
25.08.04	15	8.16	460	1.26	0.00	3.54	0.32	2.65	0.58	1.25	0.31	17.7	294	0.95
Average Values for the Sampling Period (1995-2004)														
Jan	5	8	633	2.38	0.05	4.22	0.31	3.02	1.08	2.24	0.5	21	404.88	1.64
Feb	5	8	640	2.38	0.05	4.23	0.32	3.19	1.10	2.04	0.6	21	409.32	1.64
Mar	7	8	574	2.00	0.05	3.98	0.30	3.05	0.94	1.75	0.5	20	367.50	1.41
Apr	10	8	509	1.87	0.04	3.63	0.25	3.15	0.72	1.43	0.4	18	325.69	1.27
May	12	8	427	1.36	0.04	3.06	0.20	2.58	0.71	0.97	0.3	15	273.21	0.99
Jun	13	8	473	1.71	0.06	3.25	0.28	2.71	0.69	1.33	0.3	16	302.56	1.27
Jul	17	8	514	1.82	0.06	3.57	0.34	2.82	0.76	1.53	0.4	18	328.89	1.33
Aug	18	8	491	1.53	0.06	3.57	0.27	2.55	0.71	1.62	0.5	18	313.96	1.14
Sep	16	8	593	2.41	0.06	3.81	0.23	2.89	0.90	2.26	0.6	19	379.44	1.72
Oct	10	8	648	2.46	0.06	4.37	0.29	3.14	1.00	2.46	0.7	22	414.40	1.66
Nov	9	8	652	2.42	0.06	4.34	0.29	3.22	1.08	2.23	0.6	22	417.20	1.65
Dec	6	8	668	2.31	0.06	4.70	0.23	3.64	1.02	2.18	0.6	24	427.68	1.51

**Table H.3. Water Quality Analyses at Altinsu Flow Gauging Station (EIE, No: 2322)**

Sampling Date	Temp (°C)	Sediment (ppm)	pH	EC × 10 <sup>6</sup> (µmhos/cm)	Cations (meq/L)			Anions (meq/L)				Boron (ppm)	French Hardness	Total salt (ppm)	SAR
					Na	K	Ca+Mg	CO <sub>3</sub>	HCO <sub>3</sub>	Cl	SO <sub>4</sub>				
04.01.94	8.0	45	8.3	432	1.10	0.06	3.60	0.64	2.70	0.48	0.94	1.05	18.0	276	0.82
31.01.94	4.0	39	8.2	366	1.06	0.02	2.70	0.42	1.93	0.41	1.02	0.16	13.5	234	0.91
28.02.94	7.0	92	8.2	425	1.06	0.04	3.50	0.42	2.72	0.37	1.09	0.02	17.5	272	0.80
04.04.94	11.0	437	8.1	318	0.65	0.03	2.70	0.26	2.37	0.25	0.50	0.64	13.5	204	0.56
02.05.94	6.0	516	8.1	261	0.43	0.03	2.40	0.32	1.88	0.22	0.44	0.82	12.0	167	0.39
08.06.94	16.0	212	7.9	255	0.36	0.03	2.30	0	2.30	0.21	0.18	0.16	11.5	163	0.34
05.07.94	18.0	39	8.1	259	0.53	0.03	2.30	0.20	1.80	0.24	0.62	0.76	11.5	166	0.49
04.08.94	20.0	524	8.0	369	0.90	0.04	2.90	0.08	2.52	0.42	0.82	0.40	14.5	236	0.75
05.09.94	19.0	42	8.1	399	1.05	0.04	3.10	0.30	2.81	0.45	0.63	0.40	15.5	255	0.84
13.10.94	18.0	151	8.2	433	1.18	0.05	3.60	0.40	2.50	0.50	1.43	0.15	18.0	277	0.88
17.11.94		51	7.9	393	0.97	0.04	3.60	0	2.75	0.43	1.43	0.20	18.0	252	0.72
16.12.94	4.0	152	8.3	435	1.06	0.04	3.80	0.60	2.60	0.43	1.27	0.15	19.0	278	0.77
Average Values for the Sampling Period (1984-1994)															
Jan	2	59	8.2	378	0.96	0.04	3.08	0.40	2.30	0.41	0.98	0.40	15.42	242	0.77
Feb	3	77	8.1	549	1.63	0.04	4.51	0.26	2.42	0.94	2.56	0.26	22.56	351	1.09
Mar	5	544	8.0	400	0.90	0.05	3.41	0.30	2.65	0.34	1.08	0.26	17.03	256	0.69
Apr	7	1739	8.0	311	0.55	0.04	2.73	0.20	2.34	0.24	0.54	0.16	13.64	199	0.47
May	10	2194	7.8	273	0.41	0.03	2.46	0.17	1.97	0.19	0.58	0.28	12.32	175	0.37
Jun	13	1150	7.9	235	0.35	0.03	2.10	0.10	1.90	0.19	0.28	0.29	10.48	150	0.34
Jul	17	1480	7.9	267	0.46	0.03	2.27	0.12	1.97	0.23	0.45	0.23	11.37	171	0.43
Aug	18	996	7.8	368	0.81	0.05	3.04	0.09	2.64	0.38	0.80	0.18	15.21	236	0.66
Sep	14	137	8.1	380	0.92	0.05	3.13	0.31	2.40	0.42	0.96	0.13	15.63	243	0.73
Oct	11	401	8.1	388	0.90	0.05	3.13	0.27	2.42	0.42	0.96	0.11	15.64	249	0.72
Nov	4	207	8.1	352	0.83	0.04	2.89	0.31	2.21	0.36	0.89	0.27	14.47	225	0.69
Dec	4	88	8.2	342	0.84	0.04	2.83	0.36	2.04	0.37	0.95	0.33	14.15	219	0.71

Table H.4. 1997 Water Quality Data at Bayburt Station (No: 22-22-00-010)

	April	June	August	October
pH	8.20	8.00	8.10	8.10
EC ( $\mu$ mhos/cm)	481.00	364.00	380.00	407.00
TDS (mg/L)	260.00	180.00	140.00	220.00
SS (mg/L)	470.00	30.00	40.00	70.00
Turbidity (NTU)		40.00		
M-Alk. (mg/L CaCO <sub>3</sub> )	195.00	200.00	190.00	175.00
P-Alk. (mg/L CaCO <sub>3</sub> )	0.00	0.00	0.00	0.00
Cl (mg/L)	6.00	3.60	4.26	7.00
NH <sub>3</sub> -N (mg/L)	0.30	0.05	0.15	
NO <sub>2</sub> -N (mg/L)	0.0000	0.0000	0.0078	0.0000
NO <sub>3</sub> -N (mg/L)	1.15	0.15	0.45	0.70
DO (mg/L)			9.30	
PV (mg/L)	1.84	0.96	0.88	1.12
BOD <sub>5</sub> (mg/L)		0.70	1.30	
T. hardness (mg/L CaCO <sub>3</sub> )	225.00	200.00	205.00	187.50
o-PO <sub>4</sub> (mg/L)	0.07	0.00	0.02	0.01
SO <sub>4</sub> (mg/L)	46.60	17.80	37.92	26.00
Na (mg/L)	11.00	10.00	11.96	10.00
K (mg/L)	2.20	1.60	3.51	2.30
Ca (mg/L)	60.00	64.00	51.00	53.00
Mg (mg/L)	18.20	9.70	18.88	13.40

Table H.5. 1997 Water Quality Data at Borcka Station (No: 23-22-00-009)

	February	April	June	August	October
pH	6.50	8.10	7.90	8.40	8.20
EC ( $\mu$ mhos/cm)	3.78	256.00	228.00	340.00	423.00
TDS (mg/L)	260.00	220.00	150.00	200.00	280.00
SS (mg/L)	590.00	2010.00	360.00	1960.00	710.00
Turbidity (NTU)	152.00	380.00	190.00	490.00	224.00
M-Alk. (mg/L CaCO <sub>3</sub> )	147.50	112.50	90.00	137.50	137.50
P-Alk. (mg/L CaCO <sub>3</sub> )	0.00	0.00	0.00	0.00	0.00
Cl (mg/L)	3.60	7.50	3.60	8.52	13.50
NH <sub>3</sub> -N (mg/L)	0.60	0.20	0.05	0.00	
NO <sub>2</sub> -N (mg/L)	0.0000	0.0000	0.0000	0.0128	0.0000
NO <sub>3</sub> -N (mg/L)	1.85	0.65	0.00	0.45	0.50
DO (mg/L)	11.40			8.60	
PV (mg/L)	2.96	2.08	0.96	1.04	0.80
BOD <sub>5</sub> (mg/L)	1.00		0.90	0.80	
T. hardness (mg/L CaCO <sub>3</sub> )	182.50	125.00	102.50	162.50	192.50
o-PO <sub>4</sub> (mg/L)	0.11	0.09	0.10	0.10	0.06
SO <sub>4</sub> (mg/L)	65.00	24.50	32.60	51.84	72.50
Na (mg/L)	16.00	10.00	8.00	17.02	17.00
K (mg/L)	2.00	1.60	1.20	3.12	2.00
Ca (mg/L)	47.00	35.00	30.00	45.00	45.00
Mg (mg/L)	16.00	9.10	6.70	12.18	19.50

Table H.6. 1997 Water Quality Data at Murgul Station (Downstream, No: 23-22-00-008)

	February	April	June	August	October
pH	6.00	7.90	7.90	8.10	7.50
EC (µmhos/cm)	279.00	207.00	145.00	250.00	273.00
TDS (mg/L)	230.00	170.00	140.00	180.00	280.00
SS (mg/L)	6550.00	5660.00	1070.00	2230.00	8890.00
Turbidity (NTU)	1440.00	1440.00	392.00	120.00	3120.00
M-Alk. (mg/L CaCO <sub>3</sub> )	57.50	50.00	37.50	37.50	52.50
P-Alk. (mg/L CaCO <sub>3</sub> )	0.00	0.00	0.00	0.00	0.00
Cl (mg/L)	4.30	3.60	3.00	2.84	3.60
NH <sub>3</sub> -N (mg/L)	0.10	0.30	0.05	0.60	
NO <sub>2</sub> -N (mg/L)	0.0000	0.0000	0.0000	0.0725	0.0000
NO <sub>3</sub> -N (mg/L)	1.65	0.50	0.00	0.60	0.80
DO (mg/L)	11.50			8.50	
PV (mg/L)	1.52	2.16	0.48	1.20	0.80
BOD <sub>5</sub> (mg/L)	1.40		0.50	0.70	
T. hardness (mg/L CaCO <sub>3</sub> )	140.00	100.00	80.00	132.50	137.50
o-PO <sub>4</sub> (mg/L)	0.21	0.22	0.05	0.06	0.06
SO <sub>4</sub> (mg/L)	83.00	49.90	42.70	94.08	87.40
Na (mg/L)	3.50	2.00	2.10	2.07	4.00
K (mg/L)	2.00	2.10	1.20	1.95	2.00
Ca (mg/L)	41.00	20.00	26.00	40.00	40.00
Mg (mg/L)	9.00	12.20	3.60	7.92	9.00

Table H.7. 1997 Water Quality Data at Murgul Station (Upstream, No: 23-22-00-007)

	April	June	August	October
pH	8.00	8.40	7.90	7.20
EC (µmhos/cm)	145.00	85.00	320.00	341.00
TDS (mg/L)	140.00	90.00	280.00	360.00
SS (mg/L)	1920.00	10.00	1020.00	12070.00
Turbidity (NTU)	392.00	36.00	670.00	7900.00
M-Alk. (mg/L CaCO <sub>3</sub> )	12.50	30.00	35.00	42.50
P-Alk. (mg/L CaCO <sub>3</sub> )	0.00	0.00	0.00	0.00
Cl (mg/L)	3.90	3.20	2.13	4.00
NH <sub>3</sub> -N (mg/L)	0.30	0.20	6.00	
NO <sub>2</sub> -N (mg/L)	0.0000	0.0000	0.0800	0.0000
NO <sub>3</sub> -N (mg/L)	0.60	0.00	0.90	0.85
DO (mg/L)			8.80	
PV (mg/L)	1.84	0.40	1.44	0.96
BOD <sub>5</sub> (mg/L)		0.20	1.10	
T. hardness (mg/L CaCO <sub>3</sub> )	80.00	47.50	182.50	182.50
o-PO <sub>4</sub> (mg/L)	0.15	0.05	0.05	0.05
SO <sub>4</sub> (mg/L)	65.30	16.30	145.44	140.60
Na (mg/L)	2.00	1.60	2.07	4.00
K (mg/L)	1.00	0.40	1.95	3.00
Ca (mg/L)	14.00	13.00	50.00	54.00
Mg (mg/L)	10.90	0.60	14.01	11.50

Table H.8. Comparison of Water Quality Data of Bayburt and Borcka DSI Sampling Stations

Parameter	Average		
	Bayburt	Borcka	General
pH	8.1	7.82	7.96
EC (mmhos/cm)	408	250	329
TDS (mg/L)	200	222	211
SS (mg/L)	152.5	1,126.0	639.3
Turbidity (NTU)	40.0	287.2	163.6
M-Alk. (mg/L CaCO <sub>3</sub> )	190.0	125.0	157.5
P-Alk. (mg/L CaCO <sub>3</sub> )	0	0	0
Cl (mg/L)	5.2	7.3	6.3
NH <sub>3</sub> -N (mg/L)	0.17	0.21	0.19
NO <sub>2</sub> -N (mg/L)	0.0020	0.0026	0.0023
NO <sub>3</sub> -N (mg/L)	0.61	0.69	0.65
DO (mg/L)	9.3	10.0	9.65
PV (mg/L)	1.2	1.6	1.4
BOD <sub>5</sub> (mg/L)	1.0	0.9	0.95
Total hardness (mg/L CaCO <sub>3</sub> )	204	153	179
o-PO <sub>4</sub> (mg/L)	0.025	0.092	0.0585
SO <sub>4</sub> (mg/L)	32.1	49.3	40.7
Na (mg/L)	10.7	13.6	12.2
K (mg/L)	2.4	2.0	2.2
Ca (mg/L)	57.0	40.4	48.7
Mg (mg/L)	15.0	12.7	13.9

Table H.9. Comparison of Water Quality Data of Dutdere, Ispir Koprusu and Altinsu EIE Sampling Stations

Parameter	Average			
	Dutdere	Ishan	Altinsu	General
Temperature(°C)	8.83	10.67	9.0	9.5
Sediment (ppm)	—	—	756	756
pH	8.02	8.00	8.00	8.01
EC×10 <sup>6</sup> (µmhos/cm)	170	569	354	364
Na (meq/L)	0.18	2.05	0.80	1.01
K (meq/L)	0.01	0.05	0.04	0.03
Ca+Mg (meq/L)	1.55	3.89	3.00	2.81
CO <sub>3</sub> (meq/L)	0.06	0.28	0.24	0.19
HCO <sub>3</sub> (meq/L)	1.20	3.00	2.27	2.16
Cl (meq/L)	0.16	0.89	0.37	0.47
SO <sub>4</sub> (meq/L)	0.33	1.84	0.92	1.03
Boron (ppm)	0.103	0.500	0.242	0.282
Hardness (F°)	7.7	19.5	14.8	14.0
Total salt (ppm)	109	364	226	233
SAR	0.17	1.44	0.64	0.75

Table H.10. Water Quality Measurements at Aquatic Sampling Stations on Coruh, Barhal, Oltu and Tortum Rivers

Station No.	Station	River	Date	Water depth (cm)		Secchi depth (cm)	pH	Salinity (ppt)	EC, 25°C (µmhos/cm)	DO (ppm)		Temperature (°C)		
				max.	min.					S <sup>†</sup>	B <sup>†</sup>	Water		Air
												S <sup>†</sup>	B <sup>†</sup>	
Y1	Vecanket	Barhal	07.01.98	50	10	50	8.4	0.1	200	12.2		3.8	3.9	7.8
Y2	Hazuket	Coruh	07.01.98	150	30	70	8.21	0.2	338	13.1		2	2	8
Y3	Gorgulu	Tortum	07.01.98	100	30	100	8.38	0.3	391	11.7		7.5		10.7
Y4	Arpacik	Oltu	07.01.98			30	8.31	0.85	830	12.8		2.8		6.2
Y5 (A1)	Yusufeli damsite	Coruh	07.01.98			80	8.59	0.2	438	12.6	12.8	2.5	2.5	4.5
Y6 (A2)	Inanli	Coruh	08.01.98	200	50	100	8.35	0.3	448	12.6		2.9		10.5
A3	Bez	Coruh	08.01.98	200	50	100	8.39	0.3	441	12.8		2.9		8
A4	Caglayan	Coruh	08.01.98	150	30	100	8.61	0.3	432	13.1		3.2		8.8
	Borcka	Coruh	08.01.98			5	8.21	0.3	391	11.8		5		10.2
Y1	Vecanket	Barhal	27.04.98	90	30	90	5.5	0	90			10.5	10.5	19
Y2	Hazuket	Coruh	27.04.98	200	30	10	6.4	0	230			12	12	22.9
Y3	Gorgulu	Tortum	28.04.98	110	20	11	6.5	0	261			12.5	12.5	22.5
Y4	Arpacik	Oltu	28.04.98	80	25	2	6.5	0	240			11.9	11.9	18
Y5 (A1)	Yusufeli damsite	Coruh	28.04.98	350	70	4	6.5	0	325			12.5	12.5	17
Y6 (A2)	Inanli	Coruh	28.04.98	350	60		6.5	0	219			12	12	17
A3	Bez	Coruh	28.04.98	400	60		6.5	0	219			12	12	17
A4	Caglayan	Coruh	28.04.98	300	40	6	6.5	0	219			12	12	17
	Borcka	Coruh	27.04.98	250	30	6	6.8	0	209			12.5	12.5	
	Muratli	Coruh	27.04.98	200	30	6	7.8	0	209			11.5	14.5	21
Y1	Vecanket	Barhal	24.08.02	80	20	80	6.8	0.2	220	12.0		20.8		25
Y2	Hazuket	Coruh	24.08.02	120	25	15	7.1	0.2	330	11.1		21		21

Table H.10. (Contd.) Water Quality Measurements at Aquatic Sampling Stations on Coruh, Barhal, Oltu and Tortum Rivers

Y3	Gorgulu	Tortum	25.08.02	95	20	30	7.1	0.3	455	10.5		21.5		25
Y4	Arpacik	Oltu	24.08.02	60	15	5	6.8	0.2	350	12.3		20.9		29
Y5 (A1)	Yusufeli damsite	Coruh	23.08.02	170	50	10	6.9	0	385	12.3		20.5	20.3	23
Y6 (A2)	Inanli	Coruh	23.08.02	180	40	30	7.0	0.1	460	11.9		20	20.5	28

Table H.11. Water Quality Measurements at Aquatic Sampling Stations on Coruh, Barhal, Oltu and Tortum Rivers (15.05.2004)

Station No.	Station	River	Salinity (‰)	EC, 25°C (µmhos/cm)	DO (mg/L)	Water Temperature (°C)	pH	CO <sub>3</sub> (meq/l)	HCO <sub>3</sub> (meq/l)	Cl (meq/l)	Ca (mg/l)	Mg (mg/l)	SO <sub>4</sub> (mg/l)
Y 1 A	Dokumacilar	Coruh	0.00	70	9.2	9.10	8.4	0	0.9	0.07	0.7	0.7	13.75
Y 1	Asagicala	Coruh	0.00	200	9.7	11.50	7.4	0.00	3.00	0.06	2.30	1.40	13.13
Y 2	Coruh	Coruh	0.00	170	9.8	12.00	7.8	0.80	1.90	0.05	2.10	0.90	14.38
Y 3	Tekkale	Barhal	0.00	50	9.7	8.00	8.2	0.30	0.50	0.03	0.70	0.70	5.00
Y 4		Barhal	0.00	60	10.8	8.40	7.6	0.30	0.40	0.03	0.70	0.50	7.50
Y 4 A	Tributary of Barhal	Barhal	0.00	80	10.6	8.70	8.5	0.00	1.40	0.01	1.10	0.90	10.63
Y 5	Dereiçi	Barhal	0.00	70	10.4	8.50	8.2	0.00	1.10	0.02	0.80	0.30	10.00
Y 6	Coruh-Barhal Confluence	Coruh	0.00	180	9.9	11.40	8.5	0.60	1.90	0.03	2.00	1.50	16.63
Y 7	Yagcilar	Coruh	0.00	210	9.5	12.00	8.1	0.50	2.00	0.13	1.70	1.70	20.00
Y 8	Oltu-Coruh Confluence	Coruh	0.00	210	10.0	11.00	8.5	0.60	2.00	0.13	1.50	1.70	22.50
Y 9	Oltu-Aspisan Confluence	Coruh	0.00	250	9.8	11.50	8.4	0.50	2.20	0.25	1.80	1.30	40.00
Y 10	Tivasor	Oltu	0.00	290	9.7	11.00	8.9	1.00	1.70	0.27	1.20	2.00	35.00
Y 11	Tortum	Tortum	0.00	270	9.4	11.80	8.8	0.80	1.80	0.21	1.70	1.60	36.25

Table H.12. Results of Groundwater Quality Analyses (DSI)

Parameter	Well No.				
	34127	34126	46811	46810	27087
Sampling Year	1985	1985	1993	1993	1979
pH	7.45	7.45	7.52	6.4	7.4
EC × 10 <sup>6</sup> (µmhos/cm)	—	—	—	1,320	834
Cations (meq/L)					
Na <sup>+</sup> (meq/L)	—	—	—	976.2	2.32 <sup>a</sup>
K <sup>+</sup> (meq/L)	—	—	—	6.2	
Ca <sup>+2</sup> (meq/L)	48	48	52	80	60.02 <sup>b</sup>
Mg <sup>+2</sup> (meq/L)	14.4	14.4	17.76	27.9	
Anions (meq/L)					
CO <sub>3</sub> <sup>-2</sup> (meq/L)	—	—	0	0	—
HCO <sub>3</sub> <sup>-</sup> (meq/L)	2.40	2.40	260	503.3	5.33
Cl <sup>-</sup> (meq/L)	30	30	18	182.8	0.95
SO <sub>4</sub> <sup>-2</sup> (meq/L)	—	—	—	22	—
Hardness FS <sup>o</sup>	9	9	2.04	31.5	30.1
Fe (mg/L)	—	—	0	0.597	—
Boron (mg/L)	—	—	—	1	—
Nitrite (mg/L)	—	—	0	0.0005	—
Ammonia (mg/L)	—	—	0	0	—
Organic matter (mg/L) as C	2.0	2.0	2.13	—	—

*a* : Na+K

*b* : Ca+Mg