APPENDIX 1

Physical and chemical parameter of Wang River

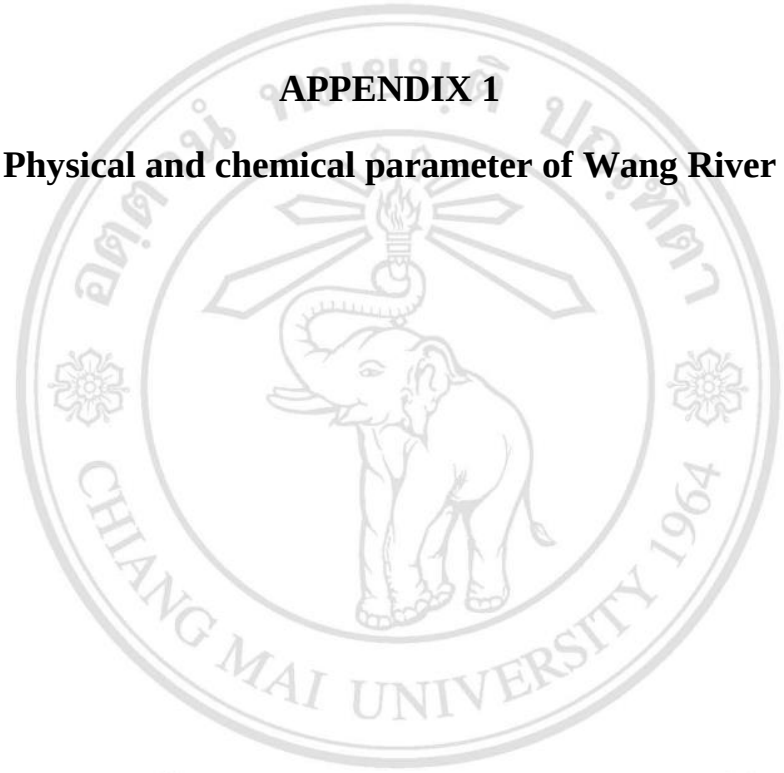


Table 23 Physical and chemical parameter of the Wang River in October 2011 – November 2011

Sampling	Water temp	Air temp	Conduct	DO	pH	Alk	Turb	BOD	SRP	NO_3^{-2}	NH3	Velo
site1-Oct	22.03	25.00	261.67	7.80	7.05	121.67	26.00	0.93	0.03	0.73	0.09	0.49
site2-Oct	26.30	32.20	271.67	7.60	7.70	120.00	62.33	1.07	0.12	0.23	0.22	0.39
site3-Oct	28.63	30.50	218.67	6.93	7.71	91.00	104.33	0.33	0.02	0.43	0.07	0.00
site4-Oct	26.47	30.50	275.33	7.67	7.30	111.67	44.00	1.07	0.02	0.00	0.12	0.67
site5-Oct	26.47	25.00	165.33	7.07	6.08	73.33	54.33	0.13	0.15	0.00	0.19	0.24
site6-Oct	26.53	24.00	187.67	5.93	6.02	82.33	45.00	0.67	0.03	0.00	0.05	0.00
site7-Oct	27.20	29.50	204.00	7.40	7.59	68.33	16.00	0.60	0.13	0.30	0.27	0.20
site8-Oct	28.03	33.00	280.33	7.13	7.00	93.67	36.67	0.53	0.10	0.00	0.30	0.15
site9-Oct	28.40	31.00	230.00	7.07	7.20	74.67	50.00	0.40	0.07	0.00	0.46	0.05
site10-Oct	27.47	36.00	298.00	7.13	6.66	89.33	81.67	0.53	0.09	0.10	0.32	0.23
site11-Oct	27.33	32.00	314.00	7.00	7.05	87.67	153.67	0.40	0.08	0.10	0.39	0.16
site12-Oct	27.23	34.00	286.00	7.00	6.11	87.33	191.67	0.40	0.09	0.00	0.52	0.19
site1-Nov	19.63	20.50	253.00	9.07	7.83	172.67	11.33	1.07	0.09	0.07	0.04	0.19
site2-Nov	24.13	26.00	266.00	8.33	7.64	153.33	74.67	1.27	0.11	0.13	0.12	0.20
site3-Nov	25.93	27.00	226.00	6.33	7.87	127.33	56.67	0.77	0.09	0.10	0.05	0.00
site4-Nov	25.03	25.00	247.33	8.20	7.51	143.33	47.67	0.87	0.03	0.17	0.10	0.30
site5-Nov	25.03	25.00	143.67	8.00	7.81	84.67	133.67	0.93	0.10	0.00	0.22	0.15
site6-Nov	25.43	22.00	201.67	4.93	6.30	117.33	41.67	1.07	0.07	0.47	0.09	0.00
site7-Nov	25.27	22.00	207.33	8.07	7.21	116.00	52.33	1.40	0.06	0.20	0.12	0.22
site8-Nov	25.87	26.00	223.33	8.13	7.73	140.00	21.67	2.03	0.23	0.47	0.23	0.16
site9-Nov	26.53	27.00	233.67	7.87	7.58	129.33	53.33	2.93	0.22	0.50	0.31	0.04
site10-Nov	27.07	30.00	306.33	8.00	7.71	144.67	42.33	1.80	0.20	0.57	0.27	0.13
site11-Nov	27.13	29.00	378.00	8.27	6.65	142.00	48.00	1.63	0.06	0.67	0.15	0.24
site12-Nov	27.03	28.00	371.67	7.60	6.33	126.67	61.67	2.17	0.08	0.77	0.25	0.06

Table 24 Physical and chemical parameter of the Wang River in December 2011 – January 2012

Sampling	Water temp	Air temp	Conduct	DO	pH	Alk	Turb	BOD	SRP	NO_3^{-2}	NH3	Velo
site1-Dec	18.40	21.00	279.33	9.00	8.51	156.00	28.00	1.13	0.03	0.63	0.09	0.19
site2-Dec	23.27	26.00	312.33	8.00	7.80	162.00	53.33	1.13	0.04	0.17	0.14	0.20
site3-Dec	26.20	27.50	253.00	6.27	7.83	132.00	37.33	0.87	0.08	0.20	0.14	0.00
site4-Dec	25.43	27.50	270.33	8.33	8.18	140.00	45.67	0.73	0.11	0.33	0.15	0.30
site5-Dec	25.43	29.50	175.33	8.00	7.98	92.67	79.00	0.80	0.13	0.27	0.38	0.15
site6-Dec	26.90	31.00	200.67	5.93	7.66	112.67	37.67	0.63	0.12	0.53	0.16	0.00
site7-Dec	27.03	30.00	312.33	9.00	8.09	149.33	33.33	1.40	0.23	0.27	0.10	0.22
site8-Dec	26.43	29.00	445.00	7.33	7.48	170.67	45.33	2.00	0.19	0.30	0.46	0.16
site9-Dec	26.30	27.00	356.67	7.33	7.57	118.67	60.67	1.73	0.19	0.33	0.36	0.04
site10-Dec	25.80	28.00	385.00	7.67	7.55	144.00	37.33	1.67	0.09	0.17	0.19	0.13
site11-Dec	25.40	26.00	354.67	7.80	7.91	151.33	33.33	0.93	0.28	0.40	0.26	0.24
site12-Dec	25.50	22.00	339.00	7.00	8.02	144.00	37.33	0.80	0.09	0.17	0.19	0.06
site1-Jan	18.87	17.50	279.33	8.40	8.49	162.67	37.33	0.37	0.01	0.20	0.06	0.19
site2-Jan	24.30	28.00	308.00	8.00	7.83	173.33	35.67	0.43	0.01	0.03	0.17	0.20
site3-Jan	26.67	30.50	259.00	8.00	8.07	153.33	29.00	0.37	0.01	0.10	0.09	0.00
site4-Jan	25.50	29.40	268.00	8.00	8.08	170.00	28.00	0.67	0.01	0.07	0.11	0.30
site5-Jan	25.50	32.50	201.33	7.20	7.85	133.33	76.33	0.20	0.08	0.00	0.37	0.15
site6-Jan	27.73	30.50	205.33	7.07	7.80	136.00	4.67	0.00	0.01	0.03	0.14	0.00
site7-Jan	27.57	32.00	293.00	8.60	8.24	164.67	10.00	1.03	0.01	0.50	0.09	0.22
site8-Jan	27.83	25.50	324.00	7.00	7.60	143.33	57.67	2.80	0.07	0.33	0.60	0.16
site9-Jan	28.83	29.07	264.33	8.13	7.77	115.33	30.00	2.90	0.39	0.07	0.22	0.04
site10-Jan	27.80	30.00	370.33	7.33	8.14	140.00	32.00	0.47	0.08	0.00	0.08	0.13
site11-Jan	28.10	29.00	412.33	7.87	8.22	171.33	102.33	0.87	0.05	0.00	0.12	0.24
site12-Jan	27.53	24.00	440.33	7.27	8.36	172.00	89.67	0.27	0.08	0.00	0.08	0.06

Table 25 Physical and chemical parameter of the Wang River in February 2012 – March 2012

Sampling	Water temp	Air temp	Conduct	DO	pH	Alk	Turb	BOD	SRP	NO_3^{-2}	NH3	Velo
site1-Feb	19.07	23.00	256.33	8.53	8.62	168.00	7.33	0.80	0.10	0.00	0.06	0.43
site2-Feb	24.90	30.00	286.00	7.40	7.88	174.67	51.33	2.00	0.35	0.00	0.18	0.19
site3-Feb	25.47	31.00	241.67	6.93	8.00	168.67	5.00	0.40	0.35	0.00	0.09	0.00
site4-Feb	25.00	31.00	238.33	8.53	8.10	153.33	25.33	0.87	0.12	0.00	0.30	0.40
site5-Feb	25.00	33.00	191.00	7.13	8.00	142.00	72.33	0.53	0.14	0.00	0.62	0.32
site6-Feb	25.67	32.00	184.00	5.93	7.73	136.00	5.67	0.40	0.36	0.03	0.17	0.00
site7-Feb	25.10	35.00	179.67	8.40	8.18	140.00	5.00	1.13	0.37	0.17	0.18	0.32
site8-Feb	25.93	34.00	199.33	7.47	8.12	141.33	64.33	1.07	0.14	0.00	0.59	0.19
site9-Feb	27.80	32.00	208.33	6.40	7.96	143.33	48.67	1.33	0.19	0.47	0.41	0.04
site10-Feb	27.30	34.00	230.00	7.27	8.12	136.67	66.33	0.93	0.17	0.20	0.46	0.19
site11-Feb	27.47	35.00	378.00	7.00	8.25	163.33	109.67	0.67	0.11	0.30	0.74	0.38
site12-Feb	28.13	34.00	381.00	6.87	8.24	183.33	42.33	1.33	0.09	0.57	0.24	0.07
site1-Mar	19.27	22.00	250.67	8.07	8.74	173.33	0.33	0.40	0.19	0.77	0.03	0.41
site2-Mar	24.77	33.00	287.67	6.53	7.71	170.00	2.67	0.80	0.21	0.60	0.14	0.19
site3-Mar	35.00	27.60	269.67	8.00	8.53	166.00	2.67	0.53	0.21	0.60	0.10	0.00
site4-Mar	25.63	34.00	256.00	8.93	8.23	162.67	1.67	1.83	0.06	0.70	0.06	0.40
site5-Mar	25.63	38.00	239.67	7.00	8.09	148.00	108.33	0.80	0.27	0.00	0.10	0.56
site6-Mar	27.80	38.50	217.00	7.33	8.20	152.67	0.00	0.80	0.17	0.00	0.00	0.00
site7-Mar	28.23	38.50	225.33	9.80	8.77	148.00	0.00	1.20	0.11	0.00	0.00	0.63
site8-Mar	29.80	39.00	300.00	9.00	8.05	154.00	11.33	1.67	0.14	0.00	0.16	0.42
site9-Mar	31.97	37.00	304.67	8.13	7.99	145.33	14.00	1.87	0.12	0.53	0.18	0.00
site10-Mar	28.83	37.00	629.67	9.00	8.41	190.00	11.67	2.07	0.15	0.60	0.11	0.36
site11-Mar	29.70	35.50	308.67	6.60	8.29	150.00	33.67	0.97	0.25	0.50	0.15	0.24
site12-Mar	29.30	29.30	286.67	7.13	8.24	167.33	57.33	2.23	0.22	0.37	0.26	0.06

Table 26 Physical and chemical parameter of the Wang River in April 2012– May 2012

Sampling	Water temp	Air temp	Conduct	DO	pH	Alk	Turb	BOD	SRP	NO_3^{-2}	NH3	Velo
site1-Apr	22.50	23.00	240.33	7.93	8.96	151.33	1.00	0.43	0.27	0.10	0.06	0.41
site2-Apr	29.00	32.50	282.67	5.00	7.86	136.00	41.33	1.57	0.86	0.13	0.33	0.19
site3-Apr	30.50	33.50	254.00	7.00	9.30	128.67	4.33	0.67	0.48	0.60	0.07	0.00
site4-Apr	28.00	33.00	258.67	7.60	8.54	137.33	0.67	0.67	0.12	0.67	0.03	0.27
site5-Apr	28.00	35.50	247.00	7.00	8.35	132.67	69.67	1.47	0.33	0.40	0.26	0.33
site6-Apr	31.00	36.00	229.00	7.07	8.56	125.33	6.33	1.20	0.32	0.57	0.10	0.00
site7-Apr	32.00	38.50	230.33	10.67	8.89	128.67	0.33	1.13	0.20	0.60	0.05	0.27
site8-Apr	35.50	37.80	523.33	4.00	7.44	162.00	24.33	3.67	0.24	0.30	2.12	0.03
site9-Apr	34.50	34.50	350.00	7.00	8.06	142.67	16.67	2.30	0.35	0.03	0.16	0.04
site10-Apr	33.50	36.00	308.33	9.00	9.24	131.33	6.67	2.17	0.24	0.00	0.05	0.08
site11-Apr	34.00	33.50	326.67	6.60	8.19	142.00	49.00	1.27	0.25	0.00	0.16	0.27
site12-Apr	32.00	30.00	217.83	6.20	8.22	144.67	70.00	2.03	0.34	0.00	0.25	0.06
site1-May	22.30	27.00	227.00	8.00	8.29	203.33	1.67	0.40	0.53	0.50	0.02	0.47
site2-May	29.37	35.50	262.00	6.80	7.71	178.67	116.00	1.33	0.54	0.00	0.52	0.41
site3-May	30.10	37.00	236.67	7.00	8.55	179.33	6.33	0.07	0.53	0.63	0.05	0.00
site4-May	29.00	37.00	256.00	8.00	8.19	200.00	3.33	0.87	0.15	0.57	0.04	0.32
site5-May	29.00	36.50	207.67	7.00	7.83	159.33	64.00	0.87	0.38	0.23	0.27	0.40
site6-May	31.50	36.50	234.00	7.00	8.36	168.00	5.67	0.87	0.47	0.57	0.07	0.00
site7-May	30.87	38.00	229.00	8.00	8.25	173.33	8.67	1.00	0.38	0.47	0.04	0.63
site8-May	32.93	37.50	260.00	6.27	7.87	150.67	90.00	1.40	0.28	0.23	0.45	0.42
site9-May	32.80	36.00	220.33	5.60	7.53	137.33	41.00	1.00	0.67	0.60	0.37	0.00
site10-May	30.90	38.00	270.67	6.00	7.64	120.00	78.00	0.60	0.45	0.37	0.30	0.36
site11-May	30.30	37.00	293.33	6.00	7.73	110.00	136.67	0.20	0.44	0.33	0.37	0.24
site12-May	30.37	35.50	238.67	5.60	7.82	99.33	243.33	0.40	0.33	0.23	0.46	0.06

Table 27 Physical and chemical parameter of the Wang River in June 2012 – July 2012

Sampling	Water temp	Air temp	Conduct	DO	pH	Alk	Turb	BOD	SRP	NO_3^{-2}	NH3	Velo
site1-Jun	23.00	26.50	231.67	8.13	8.48	162.00	3.33	0.87	0.20	0.17	0.01	0.27
site2-Jun	29.00	31.00	299.00	7.73	7.54	164.67	20.67	1.40	0.12	0.00	0.13	0.13
site3-Jun	29.50	32.00	250.67	7.00	8.41	151.33	6.67	1.07	0.05	0.00	0.04	0.00
site4-Jun	29.00	33.00	249.00	7.73	8.08	154.00	12.67	1.67	0.04	0.00	0.10	0.34
site5-Jun	29.00	33.50	249.33	7.20	8.06	149.33	41.00	0.80	0.44	0.00	0.14	0.44
site6-Jun	31.00	34.00	234.00	6.53	8.16	147.33	12.00	1.13	0.47	0.00	0.04	0.00
site7-Jun	31.00	32.00	238.00	8.87	8.46	149.33	1.67	2.07	0.35	0.03	0.06	0.40
site8-Jun	31.00	31.00	292.67	7.00	7.94	167.33	72.33	1.73	0.24	0.57	0.49	0.42
site9-Jun	30.50	30.50	257.00	5.47	7.76	144.00	61.00	2.07	0.53	0.03	0.23	0.03
site10-Jun	30.50	31.50	282.00	8.00	8.10	153.33	25.00	1.80	0.55	0.00	0.03	0.28
site11-Jun	30.00	30.00	293.33	7.00	8.37	164.00	65.67	0.87	0.40	0.07	0.01	0.25
site12-Jun	29.50	29.50	343.67	7.00	8.39	160.00	130.67	1.67	0.20	0.10	0.06	0.05
site1-Jul	22.00	24.00	232.00	8.60	8.57	164.67	1.33	1.07	0.62	0.63	0.00	0.21
site2-Jul	28.00	30.00	301.33	8.60	7.50	166.00	24.67	0.73	0.56	0.47	0.10	0.32
site3-Jul	28.50	30.80	268.33	7.73	8.11	154.00	7.67	1.80	0.49	0.57	0.03	0.00
site4-Jul	28.50	30.80	280.33	8.20	8.18	161.33	7.33	1.17	0.19	0.00	0.01	0.40
site5-Jul	28.50	32.00	247.67	7.67	7.91	142.00	82.67	1.87	0.70	0.00	0.15	0.38
site6-Jul	29.50	30.00	240.00	8.00	8.46	137.33	5.67	1.90	0.47	0.00	0.00	0.00
site7-Jul	29.50	29.50	244.00	9.00	8.53	139.33	2.00	0.87	0.45	0.00	0.00	0.44
site8-Jul	30.00	30.80	317.00	7.00	8.08	166.00	196.33	1.50	0.26	0.00	0.16	0.09
site9-Jul	29.50	28.00	283.33	6.07	7.95	136.67	38.33	0.73	0.29	0.63	0.21	0.03
site10-Jul	29.00	31.00	325.67	8.07	8.40	146.00	37.67	1.57	0.35	0.67	0.10	0.16
site11-Jul	29.00	32.00	318.67	7.93	8.38	143.67	60.67	1.60	0.21	0.67	0.12	0.33
site12-Jul	28.50	28.80	306.33	7.13	8.41	135.33	180.33	0.87	0.18	0.80	0.14	0.10

Table 28 Physical and chemical parameter of the Wang River in August 2012– September 2012

Sampling	Water temp	Air temp	Conduct	DO	pH	Alk	Turb	BOD	SRP	NO_3^{-2}	NH3	Velo
site1-Aug	23.00	27.50	192.67	8.17	8.63	151.00	3.33	0.10	0.59	0.00	0.01	0.33
site2-Aug	29.00	30.00	230.00	6.13	7.75	159.33	51.00	2.20	0.62	0.24	0.24	0.40
site3-Aug	31.00	30.00	225.67	8.47	8.69	154.00	18.33	1.27	0.41	0.11	0.11	0.00
site4-Aug	29.00	31.00	237.00	7.47	8.38	153.67	12.00	1.13	0.18	0.08	0.08	0.25
site5-Aug	29.00	29.00	137.33	6.67	8.35	101.67	139.00	1.73	0.53	0.20	0.20	0.27
site6-Aug	29.50	27.00	203.00	8.80	9.07	136.33	14.33	2.80	0.55	0.05	0.05	0.00
site7-Aug	29.00	27.00	228.33	8.47	8.68	145.00	21.00	2.80	0.56	0.09	0.09	0.15
site8-Aug	29.00	28.00	245.00	6.60	8.30	150.33	76.33	2.20	0.34	0.20	0.20	0.09
site9-Aug	30.00	31.00	134.67	5.47	8.06	84.00	190.00	2.80	0.63	0.00	0.39	0.04
site10-Aug	30.50	31.00	229.00	6.53	8.30	106.00	313.67	1.27	0.77	0.00	0.25	0.33
site11-Aug	31.00	33.00	274.67	7.13	8.40	118.67	111.33	1.07	0.52	0.00	0.08	0.26
site12-Aug	31.00	31.50	314.33	6.80	8.43	120.67	218.00	1.27	0.25	0.07	0.07	0.16
site1-Sep	21.00	23.50	231.00	8.20	8.72	163.00	49.33	0.07	0.07	0.93	0.08	0.61
site2-Sep	27.50	30.00	157.33	6.87	8.04	97.67	259.33	1.80	0.09	0.37	0.40	0.27
site3-Sep	30.50	31.00	211.00	5.13	8.41	120.33	6.67	2.13	0.02	0.57	0.16	0.00
site4-Sep	29.00	28.50	222.67	8.00	8.41	139.33	11.33	1.93	0.03	0.60	0.11	0.47
site5-Sep	29.00	28.90	144.00	7.00	8.04	91.00	133.33	1.33	0.10	0.63	0.18	0.22
site6-Sep	30.00	25.00	128.67	8.00	9.28	82.33	12.33	1.90	0.05	0.60	0.14	0.00
site7-Sep	29.00	27.00	185.33	8.00	8.18	105.33	85.33	1.50	0.08	0.67	0.33	0.27
site8-Sep	29.00	28.00	188.67	8.00	8.20	104.00	789.67	3.63	0.15	0.00	0.76	0.09
site9-Sep	30.00	31.00	167.67	5.93	7.97	96.33	141.33	2.57	0.28	0.60	0.38	0.00
site10-Sep	30.00	32.00	378.67	7.17	8.20	127.67	79.33	1.50	0.17	1.07	0.07	0.16
site11-Sep	31.00	27.90	356.00	7.57	8.26	133.67	108.00	1.13	0.21	1.10	0.08	0.15
site12-Sep	29.00	26.50	317.33	7.20	8.50	126.00	238.00	2.03	0.16	1.00	0.12	0.04

APPENDIX 2

The result of diatoms cell count

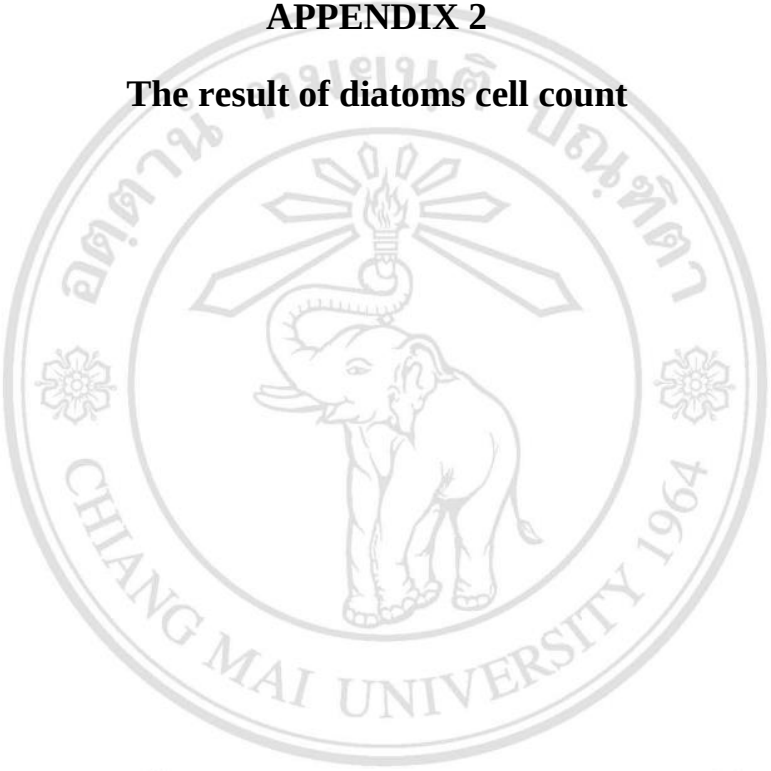


Table 29 The results of diatom cell counted of the Wang River in October 2011

	site1-Oct	site 2-Oct	site3-Oct	site4-Oct	site5-Oct	site6-Oct	site7-Oct	site8-Oct	site9-Oct	site10-Oct	site11-Oct	site12-Oct
Augra	0	0	16	0	0	0	100	0	6	0	0	0
Cymen	0	0	0	0	0	0	0	59	0	26	12	9
Cysha	0	0	78	0	0	0	15	0	0	0	0	0
Diste	0	0	47	23	0	83	93	30	0	0	0	0
Acinf	0	0	0	0	0	0	15	0	0	0	0	0
Acobl	0	0	0	0	0	0	0	0	6	0	0	0
Acpus	0	0	0	0	0	0	0	0	0	0	0	0
Acexm	0	0	0	0	0	0	15	0	0	13	12	0
Acexi	0	0	358	0	0	0	0	0	0	0	0	0
Acjak	0	0	0	0	0	0	0	0	0	0	0	0
Aclat	0	0	0	23	0	9	0	0	0	0	0	0
Acmim	0	0	31	23	79	28	0	0	0	0	0	0
Acsta	0	0	0	0	0	0	0	0	0	0	0	0
Acsub	0	0	0	0	0	0	0	0	0	0	0	0
Acsp1	0	0	0	0	0	0	0	0	0	0	0	0
Acsp2	0	0	0	0	0	9	0	0	0	0	0	0
Acsp3	0	0	0	0	0	0	0	0	0	0	0	0
Adbry	0	0	0	0	0	0	0	0	0	0	0	0
Amlir	0	0	0	0	0	0	0	44	0	0	0	0
Ansp1	0	0	0	0	0	0	0	0	0	0	0	0
Bamic	0	0	0	0	0	9	0	0	0	0	0	0
Bapax	0	0	0	0	0	0	0	0	0	0	0	0
Brneo	0	0	452	0	0	0	0	0	0	0	0	0
Cabac	9	11	0	0	26	0	23	0	0	0	0	0
Caalp	0	0	0	0	0	9	8	0	0	0	0	0
Capei	0	0	0	0	0	0	0	0	0	0	0	0
Caven	0	0	0	0	0	9	0	0	0	6	0	0
Caten	0	0	0	0	0	0	0	0	0	0	0	0
Casp1	0	0	0	0	0	0	0	0	0	0	0	0
Casp2	0	0	0	0	0	0	0	0	0	0	0	0
Copla	0	5	0	0	0	0	0	0	0	0	12	0
Crmoi	0	0	0	0	0	0	0	0	25	0	0	0
Crmos	0	0	0	0	0	0	0	0	0	0	0	0
Crvix	0	0	0	0	0	0	0	0	0	0	0	0
Cramb	0	0	0	0	0	0	0	0	0	0	0	0
Cyaff	0	0	0	942	79	9	39	0	0	0	0	18
Cybif	971	0	0	0	0	0	0	0	0	0	0	0
Cypar	0	0	327	0	0	0	70	0	0	0	0	0
Cysum	0	5	0	0	0	0	0	0	0	0	0	0
Cytum	9	0	0	0	53	0	8	0	0	0	0	0
Cytur	0	0	0	230	0	0	0	30	0	6	0	0
Cyged	5	0	16	0	0	0	0	0	0	0	0	0
Cysub	0	0	0	0	0	0	0	0	0	0	0	0
Cysp1	0	0	0	0	0	0	0	0	0	0	0	0

Table 29 (continued)

	site1-Oct	site 2-Oct	site3-Oct	site4-Oct	site5-Oct	site6-Oct	site7-Oct	site8-Oct	site9-Oct	site10-Oct	site11-Oct	site12-Oct
Cysp2	0	0	0	0	0	0	15	0	0	0	0	0
Dicon	0	0	0	0	0	0	0	0	49	19	0	0
Dedel	18	0	0	0	0	0	0	0	0	0	0	0
Desp1	0	0	0	0	0	0	0	0	0	0	0	0
Diobl	55	0	0	0	0	0	0	0	0	0	0	0
Diocu	37	0	0	0	0	0	0	0	0	0	0	0
Dipse	5	0	0	0	0	0	0	0	0	0	0	0
Enelg	0	0	0	0	0	0	46	0	0	0	0	0
Engae	0	0	0	0	0	0	0	0	0	0	0	0
Enmal	14	0	0	0	0	0	0	0	0	0	0	0
Enmes	0	21	0	0	0	19	0	0	25	0	0	0
Enmin	0	0	0	0	53	0	0	0	0	0	0	0
Enpro	0	0	0	0	0	0	0	0	0	0	0	0
Ensp1	0	0	0	0	0	0	0	0	0	0	0	0
Enlee	115	0	0	0	0	0	0	0	0	0	0	0
Enmic	0	0	810	0	0	0	0	0	0	0	0	0
Eomin	0	0	0	0	0	9	0	0	18	0	0	0
Epcis	0	0	16	0	0	0	0	0	0	0	0	0
Eubil	0	0	0	0	0	0	0	0	0	0	0	0
Eucur	0	0	0	0	0	0	0	0	12	0	0	0
Eumin	0	0	0	0	0	0	0	0	0	0	0	0
Fapyg	0	0	0	0	0	0	0	0	18	0	0	0
Frcap	0	0	0	115	0	0	39	0	0	0	0	0
Frrum	0	0	0	46	0	0	0	0	0	0	0	0
Frvau	0	0	0	0	0	0	23	0	0	0	0	0
Frwei	0	0	0	0	0	0	0	0	0	0	0	0
Haven	0	0	0	0	0	0	0	0	0	0	0	0
Hamon	0	5	0	0	0	0	209	0	12	0	0	0
Habul	0	0	0	0	0	0	0	0	0	0	0	0
Hipse	0	0	0	0	0	0	0	0	0	0	12	18
Hiavi	0	0	0	0	0	0	0	0	0	6	12	0
Gecum	0	0	0	0	0	0	0	0	0	0	0	0
Gedec	5	0	0	0	0	0	46	0	6	0	0	0
Gepun	0	0	0	0	0	0	0	0	0	0	0	0
Goaff	0	0	0	0	0	0	0	0	0	0	0	0
Goaur	0	0	0	46	0	0	0	0	0	6	0	0
Goboh	0	0	16	0	0	0	0	0	0	0	0	0
Gogra	0	0	16	0	0	0	0	0	0	0	0	0
Gojav	0	0	0	0	0	0	15	0	0	0	0	0
Golan	0	0	0	0	0	0	0	0	0	0	0	0
Gomic	0	0	0	0	0	0	0	0	37	0	0	0
Gomin	0	0	0	0	0	0	15	0	0	0	0	0
Gopar	0	134	0	115	289	19	506	74	12	6	0	18
Golag	0	0	0	138	0	0	270	0	0	0	0	0

Table 29 (continued)

	site1 -Oct	site 2- Oct	site3- Oct	site4 -Oct	site5- Oct	site6- Oct	site7- Oct	site8- Oct	site9- Oct	site10 -Oct	site11 -Oct	site12 -Oct
Gopro	0	11	0	0	0	0	0	0	0	0	0	0
Gopse	0	0	0	0	26	0	0	0	12	0	0	0
Gopum	0	0	47	0	0	0	0	0	0	0	0	0
Gopal	0	0	0	0	0	0	0	0	0	0	0	0
Gotru	0	0	0	0	0	0	0	0	0	0	0	0
Gyobs	0	0	0	0	0	0	0	0	0	0	0	0
Gysca	9	38	0	0	53	0	39	0	0	0	61	109
Gyspe	9	16	0	0	26	0	0	44	0	0	24	18
Kosp1	0	0	0	0	0	19	0	0	0	0	0	0
Lumit	0	0	0	0	0	0	0	0	6	0	0	0
Lulan	0	0	0	0	0	0	0	0	0	0	0	0
Lusax	0	0	0	0	0	0	0	0	6	0	0	0
Lusim	9	0	0	23	0	9	0	0	0	0	0	45
Luter	0	0	0	0	0	0	0	0	0	0	0	0
Lupse	0	0	0	0	0	0	0	0	6	0	12	9
Lusp1	0	0	0	0	0	0	0	0	18	0	0	36
Myagr	0	0	0	0	0	0	0	0	0	0	0	0
Naamp	0	0	0	0	26	0	0	59	6	6	0	0
Naant	0	0	0	0	0	0	0	0	20	0	0	0
Nacap	0	0	0	0	0	0	0	0	0	0	0	0
Nacat	9	0	0	0	0	0	0	0	0	0	0	0
Nacat	0	0	0	0	0	0	0	0	0	0	0	0
Nacin	0	0	0	0	0	0	0	0	0	0	0	0
Nacry	0	11	0	0	0	0	0	0	0	0	0	0
Naeri	0	0	0	0	26	0	31	0	0	0	0	0
Naesc	0	172	0	0	0	0	8	0	6	0	0	0
Nager	0	0	0	0	0	0	0	0	25	45	12	27
Nahei	426	0	16	0	0	0	31	0	0	0	0	0
Nahin	0	0	0	0	0	0	0	0	0	0	0	0
Najac	0	0	0	0	0	0	15	0	12	0	0	0
Narad	0	0	0	0	5	12	19	4	0	0	0	0
Narei	0	0	0	0	0	0	0	0	0	0	0	0
Naros	0	27	0	0	0	0	0	0	0	0	0	0
Nasim	0	11	0	0	0	0	62	0	0	0	73	9
Nasup	0	0	0	390	421	9	77	0	0	0	37	9
Namer	270	0	0	0	0	9	31	0	0	0	0	0
Navan	0	0	0	0	0	0	15	0	0	13	0	0
Navia	0	0	0	0	105	0	0	0	0	0	0	0
Navir	0	0	0	0	0	0	0	0	0	0	0	0
Naaqu	14	0	0	0	0	0	0	0	0	0	0	0
Nabel	0	64	0	0	0	0	8	0	0	0	0	0
Nalei	0	0	0	0	0	0	0	0	0	0	0	0
Napar	261	0	0	23	0	0	0	0	0	0	12	0
Navek	0	0	0	23	0	0	0	133	25	0	24	0

Table 29 (continued)

	site1-Oct	site 2-Oct	site3-Oct	site4-Oct	site5-Oct	site6-Oct	site7-Oct	site8-Oct	site9-Oct	site10-Oct	site11-Oct	site12-Oct
Nasp1	0	0	0	0	0	0	0	0	0	0	0	0
Nasp2	0	0	0	0	0	0	0	0	0	0	0	0
Nanan	0	0	0	0	26	0	0	0	0	0	0	0
Neaff	0	0	0	0	0	11	0	0	0	0	0	0
Nesev	0	0	0	0	0	0	0	0	0	0	0	0
Nebin	0	0	0	0	0	0	0	0	0	0	0	0
Nedub	0	0	0	0	0	0	0	0	0	0	0	0
Negra	0	0	0	0	0	0	0	0	12	0	0	0
Niamp	0	0	0	0	0	0	0	0	0	6	0	0
Niang	0	0	0	0	0	0	0	0	0	0	0	0
Nicla	0	0	0	0	0	0	15	0	0	0	0	0
Nicom	0	0	0	0	0	0	0	0	0	0	0	0
Nibal	0	0	0	0	0	0	0	0	0	0	0	0
Nides	0	0	0	0	0	9	0	0	0	0	0	0
Nidis	0	5	0	0	0	0	0	0	0	0	24	36
Nicon	9	0	0	0	0	0	0	0	0	0	0	0
Nifre	0	0	0	0	0	926	0	0	0	0	0	0
Nifru	0	0	0	0	0	0	0	0	0	19	12	18
Nigra	0	70	0	0	0	0	8	59	0	6	12	9
Nihan	0	0	0	0	0	9	15	0	0	0	0	0
Nihoe	0	0	0	0	0	0	0	0	0	0	0	0
Niint	0	11	0	0	0	0	8	0	0	0	0	0
Nimin	0	0	0	0	0	0	0	0	6	0	0	0
Nilor	0	0	0	0	0	9	0	0	0	6	12	0
Nipal	0	290	0	0	158	46	46	1581	706	334	207	118
Nideb	0	5	0	0	0	0	0	0	0	168	0	0
Nipar	0	0	0	0	0	0	0	0	12	0	0	0
Niper	0	0	0	0	0	0	0	0	6	6	0	0
Nipum	0	0	0	0	0	9	0	59	12	0	0	0
Nirec	0	0	0	69	0	278	8	0	0	0	12	18
Nirev	0	0	0	0	0	0	0	0	12	0	0	0
Nisal	0	0	0	0	0	0	0	0	0	6	0	9
Nisca	0	0	0	0	0	0	0	0	0	0	12	0
Nisin	0	0	0	0	0	0	0	0	0	0	0	0
Nisol	18	0	0	0	0	0	0	0	0	0	0	0
Nivut	0	0	0	0	0	0	108	0	0	0	0	9
Haamp	0	0	0	0	0	0	0	0	0	0	0	0
Trsal	0	5	0	0	0	0	0	0	0	0	0	0
Piaci	0	0	0	0	0	0	15	0	0	0	0	9
Pibic	0	0	0	0	0	0	0	0	6	0	0	0
Pioom	0	5	0	0	0	0	0	0	0	0	0	0
Pipse	0	0	0	0	0	0	0	0	0	0	0	0
Pisub	0	0	0	0	0	9	0	0	0	0	0	0
Piint	0	0	0	0	0	0	0	0	12	6	0	0

Table 29 (continued)

	site1-Oct	site 2-Oct	site3-Oct	site4-Oct	site5-Oct	site6-Oct	site7-Oct	site8-Oct	site9-Oct	site10-Oct	site11-Oct	site12-Oct
Plcap	0	0	0	0	0	0	0	0	0	0	0	0
Plwit	0	0	0	0	0	0	0	0	0	0	0	0
Plele	0	0	0	0	0	0	0	0	0	0	0	0
Plpro	0	0	0	0	0	0	0	0	6	0	0	0
Plfre	0	27	0	0	53	19	15	44	6	0	0	0
Plros	0	5	0	0	0	0	0	0	0	6	0	0
Plsp1	0	0	0	0	0	0	0	30	0	0	0	0
Plneg	5	0	0	0	0	0	0	0	0	0	0	0
Reuni	0	0	0	0	0	0	0	0	0	0	0	0
Rhcon	0	0	0	0	0	0	0	0	0	0	0	0
Rhgib	0	0	0	0	0	0	0	0	0	0	0	0
Rhmus	0	5	16	0	0	0	0	0	0	0	0	0
Stanc	0	0	0	0	0	0	0	0	0	0	0	0
Stkri	5	0	0	0	0	0	0	0	0	0	0	0
Stsmi	0	0	0	0	0	0	0	0	0	0	0	0
Stsp1	0	0	0	0	0	0	0	0	0	0	0	0
Sestr	0	134	0	138	210	9	201	74	6	0	49	9
Selba	0	0	0	0	0	0	0	0	0	0	0	0
Selbl	0	0	0	0	0	9	23	0	0	0	0	0
Secap	0	0	0	0	0	0	0	0	0	0	0	0
Selse	0	0	0	0	0	9	0	0	0	0	0	0
Sella	0	0	0	46	0	0	0	0	12	0	0	0
Selpa	0	0	0	0	0	0	0	0	0	0	0	0
Seobe	0	0	0	0	0	0	0	0	6	0	0	0
Selst	5	0	0	0	0	0	0	0	0	0	0	0
Selsu	0	0	16	0	0	0	0	0	0	0	0	0
Sesp1	0	0	0	0	0	0	8	0	0	0	0	0
Sesp2	0	0	0	0	0	0	0	0	0	0	0	0
Suang	0	5	0	0	0	0	0	0	0	0	0	0
Sufon	0	0	0	0	0	0	0	0	0	0	0	0
Sulin	0	0	0	0	0	0	0	0	6	0	0	0
Suspl	0	0	0	0	0	0	0	0	0	0	0	0
Suost	0	0	0	0	0	0	0	0	0	0	0	0
Suten	0	0	0	0	0	0	0	0	0	0	0	0
Suner	0	0	0	0	0	0	0	0	12	0	0	0
Susp1	0	0	0	0	0	0	0	0	0	0	0	0
Susp2	0	0	0	0	0	0	0	0	0	0	0	0
Susp3	0	0	0	0	0	0	0	0	0	0	0	0
Susp4	0	0	0	0	0	0	0	0	0	0	0	0
Ularc	0	0	94	115	0	9	15	0	0	0	24	18
Ullan	0	0	0	184	0	0	15	0	0	0	12	18
Ulram	0	0	0	0	0	0	0	0	0	0	0	0
Ulull	0	0	31	0	0	0	15	0	0	0	24	0

Table 30 The results of diatom cell counted of the Wang River in November 2011

	site1-Nov	site2-Nov	site3-Nov	site4-Nov	site5-Nov	site6-Nov	site7-Nov	site8-Nov	site9-Nov	site10-Nov	site11-Nov	site12-Nov
Augra	0	0	0	0	0	0	0	0	0	0	0	0
Cymen	0	0	0	0	0	50	0	0	0	0	5	0
Cysha	0	0	0	0	0	6	0	0	0	0	0	0
Diste	0	0	23	6	0	88	44	37	10	0	20	0
Acinf	0	0	0	0	0	0	5	0	0	0	0	0
Acobl	0	0	0	0	0	0	0	0	0	0	0	0
Acpus	0	0	0	0	0	0	0	0	0	0	0	0
Acexm	0	4	0	0	0	0	0	0	0	0	0	0
Acexi	0	0	716	1037	0	0	0	0	0	0	0	0
Acjak	0	0	0	0	0	0	0	0	0	0	0	0
Aclat	0	0	44	0	44	50	5	0	0	0	0	0
Acmim	0	0	41	94	132	876	394	0	0	47	5	12
Acsta	12	0	0	0	0	0	0	0	0	0	0	0
Acsub	0	0	0	0	0	0	0	0	0	0	0	0
Acsp1	0	0	0	0	0	0	0	0	0	0	0	0
Acsp2	0	0	0	0	0	0	0	0	0	0	0	0
Acsp3	0	0	0	0	0	0	0	0	0	0	0	0
Adbry	0	0	6	6	0	0	0	0	0	0	0	0
Amlir	0	0	0	0	0	0	0	0	10	9	0	6
Ansp1	0	0	0	0	0	0	0	0	0	0	0	0
Bamic	0	0	0	0	0	0	0	0	0	0	0	0
Bapax	0	0	0	0	0	0	0	0	5	4	0	0
Brneo	0	0	23	121	0	0	0	0	0	0	0	0
Cabac	0	0	0	0	0	0	0	0	0	0	0	0
Caalp	0	0	0	0	0	0	0	0	0	0	0	0
Capei	0	0	0	0	0	0	0	0	0	0	0	0
Caven	0	0	0	0	0	0	0	0	0	0	0	0
Caten	0	0	0	0	0	0	0	0	0	0	0	0
Casp1	0	0	0	0	0	0	0	0	0	0	0	0
Casp2	0	40	0	0	0	0	0	0	0	0	0	0
Copla	0	0	0	0	22	0	11	0	0	4	0	0
Crmoi	0	0	0	0	0	0	0	0	0	0	0	0
Crmos	0	0	0	0	0	0	0	0	0	0	0	0
Crvix	0	0	0	0	0	0	0	0	0	0	0	6
Cramb	0	0	0	0	0	0	0	0	0	0	0	0
Cyaff	0	0	6	6	143	0	5	0	0	0	0	6
Cybif	1248	0	0	0	0	0	0	0	0	0	0	0
Cypar	0	0	106	529	0	138	22	0	0	0	0	0
Cysum	0	0	0	0	0	0	0	0	0	0	0	0
Cytum	18	0	3	0	11	0	0	0	0	13	0	0
Cytur	0	0	0	0	0	0	0	0	0	13	0	0
Cyged	0	0	0	0	0	0	0	0	0	0	0	0
Cysub	0	0	0	0	0	0	0	0	0	0	0	0
Cysp1	0	0	0	0	0	0	0	0	0	0	0	0

Table 30 (continued)

	site1-Nov	site2-Nov	site3-Nov	site4-Nov	site5-Nov	site6-Nov	site7-Nov	site8-Nov	site9-Nov	site10-Nov	site11-Nov	site12-Nov
Cysp2	0	0	0	0	0	0	0	0	0	0	0	0
Dicon	0	0	0	0	0	0	0	0	5	0	0	0
Dedel	119	0	0	0	0	56	0	0	0	0	0	0
Desp1	0	0	0	0	0	0	0	0	0	0	0	0
Diobl	18	0	0	0	0	0	38	0	0	0	0	0
Diocu	24	0	0	0	0	0	0	0	0	0	0	12
Dipse	18	0	0	0	0	0	0	0	0	0	0	0
Enelg	0	0	0	0	0	0	0	0	0	0	0	0
Engae	0	0	0	0	0	13	0	0	0	0	0	0
Enmal	143	0	0	0	0	0	0	0	0	0	0	0
Enmes	0	0	0	0	0	13	0	12	0	0	0	0
Enmin	0	0	0	0	0	0	0	0	0	0	0	0
Enpro	0	0	0	0	0	0	0	0	0	0	0	0
Ensp1	0	0	0	0	0	0	0	0	0	0	0	0
Enlee	42	0	0	0	0	0	0	0	0	0	0	0
Enmic	6	0	0	138	0	0	0	0	0	0	0	0
Eomin	0	0	0	0	0	0	0	0	0	0	0	6
Epcis	0	0	0	0	0	0	0	0	0	0	0	0
Eubil	0	0	0	0	0	0	0	0	0	0	0	0
Eucur	0	0	0	0	0	0	0	0	0	0	0	0
Eumin	0	0	0	0	0	0	0	0	0	0	0	0
Fapyg	0	0	0	0	0	0	0	0	5	0	0	0
Frcap	0	0	0	6	0	0	0	0	0	0	0	0
Frrum	0	0	9	11	0	0	0	0	0	0	0	0
Frvau	0	0	12	0	0	0	0	0	0	0	0	0
Frwei	6	0	0	0	0	0	0	0	0	0	0	0
Haven	0	0	0	0	0	0	0	0	0	0	0	0
Hamon	0	4	0	0	0	19	5	0	0	0	0	0
Habul	0	0	0	0	0	0	0	0	0	0	0	0
Hipse	0	0	0	0	0	0	0	0	0	0	10	19
Hiavi	0	0	0	0	0	0	0	0	0	0	0	0
Gecum	0	0	0	0	0	0	0	0	0	0	0	0
Gedec	0	0	0	0	0	0	0	0	0	0	0	0
Gepun	0	0	0	0	0	0	0	0	0	0	0	0
Goaff	0	0	0	11	0	0	0	0	0	0	0	0
Goaur	0	0	23	28	0	194	0	0	0	0	0	0
Goboh	0	0	0	0	0	0	0	0	0	0	0	0
Gogra	6	0	12	66	0	0	0	0	0	4	0	0
Gojav	0	0	0	0	0	0	5	0	0	0	0	0
Golan	0	0	0	0	0	0	0	0	0	0	0	0
Gomic	0	0	0	0	0	0	0	0	0	0	0	6
Gomin	0	0	0	0	0	0	0	0	0	0	0	0
Gopar	0	178	0	0	121	25	0	12	0	13	10	6
Golag	0	0	0	6	0	0	0	0	0	0	0	0

Table 30 (continued)

	site1-Nov	site2-Nov	site3-Nov	site4-Nov	site5-Nov	site6-Nov	site7-Nov	site8-Nov	site9-Nov	site10-Nov	site11-Nov	site12-Nov
Gopro	0	0	0	0	0	0	0	0	0	0	0	0
Gopse	0	0	0	0	0	0	0	0	0	13	0	0
Gopum	0	0	91	0	0	0	0	0	0	0	0	0
Gopal	0	0	0	0	0	0	0	0	0	0	0	0
Gotru	0	0	0	0	0	0	0	0	0	0	0	6
Gyobs	0	0	0	0	0	0	0	0	0	0	0	0
Gysca	6	4	0	0	0	0	0	0	0	0	5	75
Gyspe	0	13	0	0	0	0	0	0	5	4	10	12
Kosp1	0	0	0	0	0	19	33	0	0	0	0	0
Lumit	0	0	0	0	0	0	0	0	0	0	0	0
Lulan	0	0	0	0	0	0	0	0	0	0	0	0
Lusax	0	0	0	0	0	0	5	0	0	0	0	0
Lusim	54	0	0	0	0	0	0	0	0	0	0	25
Luter	0	0	0	0	33	0	0	0	0	0	0	0
Lupse	0	0	0	0	0	0	0	0	5	0	0	12
Lusp1	0	0	0	0	0	0	0	0	0	4	0	37
Myagr	0	0	0	0	0	0	0	0	0	0	0	0
Naamp	0	0	18	0	11	0	0	0	19	9	0	0
Naant	0	0	0	0	0	0	0	0	5	0	0	0
Nacap	6	0	0	0	0	0	0	0	0	0	0	0
Nacat	0	0	0	0	0	0	5	0	0	0	0	0
Nacat	0	4	0	0	0	0	0	0	0	0	0	0
Nacin	0	0	0	0	0	0	0	0	0	0	0	0
Nacry	0	0	0	0	0	0	0	0	0	0	0	0
Naeri	0	0	0	0	0	0	5	0	0	0	0	0
Naesc	0	94	0	0	0	0	0	0	0	0	0	0
Nager	0	0	0	55	0	0	0	0	106	13	10	31
Nahei	102	0	18	127	0	0	11	0	0	0	0	0
Nahin	191	0	0	0	0	0	0	0	0	0	0	0
Najac	0	0	0	0	0	0	0	0	0	0	0	0
Narad	0	0	0	0	0	0	0	0	0	0	0	0
Narei	0	0	3	17	0	0	11	0	0	0	0	0
Naros	0	0	0	0	0	0	0	0	0	0	0	0
Nasim	0	18	9	0	0	0	0	0	0	4	5	19
Nasup	0	0	0	0	220	0	22	25	0	17	10	19
Namer	233	0	0	0	66	13	38	0	0	0	0	0
Navan	0	0	0	0	0	0	0	0	0	13	5	0
Navia	0	0	0	0	11	13	0	0	0	0	0	0
Navir	0	0	0	0	0	0	0	0	0	0	0	0
Naaqu	6	0	0	0	0	0	0	0	0	0	0	0
Nabel	0	62	0	0	0	0	5	0	0	0	0	0
Nalei	0	0	0	0	0	0	0	0	0	0	0	0
Napar	323	0	0	0	11	69	0	0	0	0	0	0
Navek	0	62	0	28	0	0	0	25	19	0	0	0

Table 30 (continued)

	site1-Nov	site2-Nov	site3-Nov	site4-Nov	site5-Nov	site6-Nov	site7-Nov	site8-Nov	site9-Nov	site10-Nov	site11-Nov	site12-Nov
Nasp1	0	0	0	0	0	0	0	0	0	0	0	0
Nasp2	0	0	0	0	0	0	0	0	0	0	0	0
Nanan	0	0	0	0	33	0	0	0	14	0	0	0
Neaff	0	0	0	0	0	0	0	0	0	0	0	0
Nesev	0	0	0	0	0	0	0	0	0	0	0	0
Nebin	0	0	0	0	0	0	0	0	0	0	0	0
Nedub	0	0	0	0	0	0	0	0	0	0	0	0
Negra	0	0	0	0	0	0	0	0	0	0	0	0
Niamp	0	0	3	0	0	0	0	0	0	0	0	0
Niang	0	0	0	0	0	0	0	0	0	0	15	0
Nicla	0	0	0	0	11	0	0	0	0	0	10	0
Nicom	0	0	0	0	0	0	0	0	0	0	0	0
Nibal	0	0	0	0	0	0	0	0	0	0	0	0
Nides	0	0	0	0	0	0	0	0	0	0	0	0
Nidis	0	0	0	0	22	0	11	6	0	0	0	25
Nicon	78	0	0	0	0	0	0	0	0	0	0	6
Nifre	0	0	0	0	0	88	0	0	0	0	0	0
Nifru	0	0	0	0	0	0	0	0	0	0	15	19
Nigra	0	36	0	0	0	0	0	0	5	4	84	6
Nihan	0	0	0	0	0	0	0	0	0	0	0	0
Nihoe	0	0	0	0	0	0	0	0	0	0	0	0
Niint	0	9	0	0	0	0	0	0	0	0	0	0
Nimin	0	0	0	0	0	0	0	0	0	0	0	0
Nilor	0	0	0	0	0	0	0	0	0	0	0	0
Nipal	0	464	0	0	88	138	77	862	468	405	312	137
Nideb	0	18	0	0	0	0	0	0	0	0	0	0
Nipar	0	0	0	0	0	0	0	0	5	0	0	0
Niper	0	0	0	0	0	0	0	0	0	4	0	0
Nipum	0	0	0	0	0	0	0	0	0	0	0	0
Nirec	18	0	35	55	22	0	115	0	0	0	0	31
Nirev	0	4	0	0	0	0	0	0	0	0	10	0
Nisal	0	0	0	0	0	0	0	0	0	0	0	6
Nisca	0	0	0	0	0	0	0	0	0	0	0	0
Nisin	0	0	0	0	0	0	0	0	0	0	0	0
Nisol	0	0	0	0	0	0	0	0	0	0	0	0
Nivut	0	18	0	0	0	88	186	6	0	0	0	6
Haamp	0	0	0	0	0	0	0	0	0	0	0	0
Trsal	0	0	0	0	0	6	0	0	0	4	0	6
Piaci	0	0	0	0	0	0	0	0	10	0	0	6
Pibic	0	0	0	0	0	0	0	0	0	0	0	0
Pioom	0	0	0	0	0	0	0	0	0	0	0	0
Pipse	0	0	0	0	0	0	0	0	0	0	0	0
Pisub	0	0	0	0	0	0	0	0	0	0	0	0
Piint	0	0	3	11	0	0	0	0	0	0	0	0

Table 30 (continued)

	site1-Nov	site2-Nov	site3-Nov	site4-Nov	site5-Nov	site6-Nov	site7-Nov	site8-Nov	site9-Nov	site10-Nov	site11-Nov	site12-Nov
Plcap	0	0	0	0	0	0	0	0	0	0	0	0
Plwit	0	0	0	0	0	0	0	0	0	0	0	0
Plele	0	0	0	0	0	0	0	0	0	0	0	0
Plpro	0	0	0	0	0	0	0	0	0	0	0	0
Plfre	0	18	3	0	44	6	5	129	19	4	0	0
Plros	0	0	0	0	0	0	0	0	0	0	0	0
Plsp1	0	0	0	0	0	0	0	0	0	0	0	0
Plneg	0	0	0	0	0	0	0	0	0	4	0	0
Reuni	0	0	0	0	0	0	0	0	0	0	0	0
Rhcon	0	0	0	0	0	0	0	0	0	0	0	0
Rhgib	0	0	0	6	0	0	0	0	0	0	0	0
Rhmus	0	0	0	33	0	0	0	0	0	0	0	0
Stanc	0	0	0	0	0	0	0	0	0	0	0	0
Stkri	6	0	0	0	0	0	0	0	0	0	0	0
Stsmi	0	0	0	0	0	0	0	0	0	0	0	0
Stsp1	0	0	0	0	0	0	0	0	0	0	0	0
Sestr	0	138	47	0	154	0	241	86	72	362	55	106
Selba	0	0	9	0	0	0	0	0	0	0	0	0
Selbl	0	0	18	0	0	0	0	0	0	0	0	0
Secap	0	0	0	0	0	0	0	0	0	0	0	0
Selse	0	0	0	0	0	0	0	0	0	0	0	0
Sella	0	0	0	0	0	0	0	0	14	0	0	0
Selpa	0	0	0	0	0	0	5	0	0	0	0	0
Seobe	0	0	0	0	0	0	0	0	0	0	0	0
Selst	0	0	0	0	0	0	0	0	0	0	0	0
Selsu	0	0	0	0	0	0	0	0	0	0	0	0
Sesp1	0	0	0	0	0	0	0	0	0	0	0	0
Sesp2	0	0	0	0	0	0	0	0	0	0	0	0
Suang	0	4	0	0	0	0	0	0	0	0	0	0
Sufon	0	0	0	0	0	0	0	0	0	0	0	0
Sulin	0	0	0	0	0	0	0	0	0	0	0	0
Suspl	0	0	0	0	0	0	0	0	0	0	0	0
Suost	6	0	0	0	0	0	0	0	0	0	5	6
Suten	0	0	0	0	0	0	0	0	0	0	0	0
Suner	0	0	0	0	0	0	0	0	0	0	0	0
Susp1	0	0	0	0	0	0	0	0	0	0	0	0
Susp2	0	0	0	0	0	0	0	0	0	0	0	0
Susp3	6	0	0	0	0	0	0	0	0	0	0	0
Susp4	0	0	0	0	0	0	0	0	0	0	0	0
Ularc	0	0	21	0	11	25	16	0	5	9	0	12
Ullan	0	0	44	11	0	0	0	0	0	0	10	19
Ulram	0	4	0	0	0	0	0	0	0	0	0	0
Ulull	0	0	56	6	0	0	0	0	5	39	10	0

Table 31 The results of diatom cell counted of the Wang River in December 2011

	site1-Dec	site2-Dec	site3-Dec	site4-Dec	site5-Dec	site6-Dec	site7-Dec	site8-Dec	site9-Dec	site10-Dec	site11-Dec	site12-Dec
Augra	0	0	0	0	0	0	7	6	0	0	0	0
Cymen	0	0	4	0	0	0	0	0	0	0	9	0
Cysha	0	0	14	0	0	12	36	0	0	0	0	0
Diste	0	0	22	35	0	50	0	6	12	0	0	17
Acinf	0	0	0	0	0	0	0	0	0	0	0	0
Acobl	0	0	0	0	0	0	0	0	0	0	0	4
Acpus	0	0	0	0	0	0	0	0	0	0	0	0
Acexm	0	0	0	0	0	0	0	0	0	0	0	0
Acexi	0	0	746	578	0	0	0	0	0	0	0	0
Acjak	20	0	0	0	0	0	0	0	0	0	0	0
Aclat	20	0	0	0	7	12	0	0	0	0	0	0
Acmim	174	75	94	38	335	199	43	0	0	1053	0	64
Acsta	10	0	0	0	0	0	0	0	0	0	0	0
Acsub	0	0	0	0	0	0	0	0	0	0	0	0
Acsp1	0	0	0	0	0	0	0	0	0	0	0	0
Acsp2	0	0	0	0	0	0	0	0	0	0	0	0
Acsp3	0	0	0	0	0	0	0	0	0	0	0	0
Adbry	0	0	4	0	0	0	0	0	0	0	0	0
Amlir	0	0	0	0	0	0	22	32	29	0	0	6
Ansp1	0	0	0	0	0	0	0	0	0	0	0	0
Bamic	0	0	0	0	0	0	0	0	0	0	0	0
Bapax	0	2	0	3	0	0	0	6	6	0	0	0
Brneo	0	0	508	27	29	0	7	0	12	0	0	23
Cabac	0	0	0	0	0	0	0	0	0	0	0	0
Caalp	0	0	0	0	0	0	0	0	0	0	0	0
Capei	0	0	0	0	0	0	0	0	0	0	0	0
Caven	0	0	0	0	0	0	0	6	0	0	0	0
Caten	0	0	0	0	0	0	0	0	0	0	0	0
Casp1	0	0	0	0	0	0	0	0	0	0	0	0
Casp2	0	9	0	0	0	0	0	0	0	0	0	0
Copla	0	0	7	0	7	0	224	13	0	131	0	0
Crmoi	0	0	0	0	0	0	0	0	0	0	0	0
Crmos	0	0	0	0	0	0	0	0	0	0	0	0
Crvix	0	0	0	0	0	0	0	0	0	0	0	12
Cramb	0	0	0	0	0	0	0	0	0	0	0	0
Cyaff	0	9	0	0	86	0	22	0	0	0	9	0
Cybif	1008	0	0	0	0	0	0	0	0	0	0	0
Cypar	0	0	216	54	29	0	0	0	0	0	0	0
Cysum	0	2	0	0	0	0	0	0	0	0	0	0
Cytum	10	2	0	0	21	0	0	0	0	6	0	0
Cytur	0	2	0	0	0	0	0	19	12	23	0	0
Cyged	0	0	22	0	0	0	0	0	0	0	0	0
Cysub	0	0	0	0	0	0	0	0	0	0	0	0
Cysp1	0	0	0	3	0	0	0	0	0	0	0	0

Table 31 (continued)

	site1-Dec	site2-Dec	site3-Dec	site4-Dec	site5-Dec	site6-Dec	site7-Dec	site8-Dec	site9-Dec	site10-Dec	site11-Dec	site12-Dec
Cysp2	0	0	0	0	0	0	0	0	0	0	0	0
Dicon	0	0	0	0	0	0	0	0	0	0	0	0
Dedel	164	0	0	0	0	0	0	0	0	0	0	0
Desp1	19	0	0	0	0	0	0	0	0	0	0	0
Diobl	36	0	0	0	0	0	7	6	29	0	0	0
Diocu	0	0	0	0	0	0	0	0	0	0	0	29
Dipse	0	0	0	0	0	0	0	0	0	0	0	0
Enelg	0	0	0	0	0	0	7	0	0	0	0	0
Engae	0	0	0	0	0	0	0	0	0	0	0	0
Enmal	271	0	0	0	0	0	0	0	24	0	0	0
Enmes	0	0	0	0	0	0	0	6	0	0	0	0
Enmin	0	0	0	0	7	0	0	0	0	0	0	0
Enpro	0	0	0	0	0	0	0	0	0	0	0	0
Ensp1	0	0	0	0	0	0	0	0	0	0	0	0
Enlee	15	0	0	0	0	0	0	0	0	0	0	0
Enmic	0	0	800	16	7	0	0	0	0	0	0	0
Eomin	0	0	0	0	0	0	0	0	0	0	0	23
Epcis	0	0	43	0	0	0	0	0	0	0	0	0
Eubil	0	0	4	0	0	0	0	0	0	0	0	0
Eucur	0	0	0	0	0	0	0	0	0	0	0	0
Eumin	0	0	0	0	0	0	0	0	0	0	0	0
Fapyg	0	0	0	0	0	0	0	0	6	0	0	0
Frcap	0	0	0	3	0	0	7	0	0	0	0	0
Frrum	0	0	22	3	0	12	0	0	0	0	0	0
Frvau	0	0	0	0	0	0	14	0	0	0	0	0
Frwei	5	0	0	0	0	0	0	0	0	0	0	0
Haven	0	0	0	0	0	0	0	0	0	0	0	0
Hamon	0	0	0	3	7	25	0	0	6	0	0	0
Habul	0	0	0	0	0	0	0	0	0	0	0	0
Hipse	0	0	0	0	0	0	0	0	0	0	0	6
Hiavi	0	0	0	0	0	0	0	0	24	0	0	0
Gecum	0	0	0	0	0	0	0	0	0	0	0	0
Gedec	0	0	0	0	0	0	0	13	0	0	0	0
Gepun	0	0	0	0	0	0	0	0	0	0	0	12
Goaff	0	0	14	0	0	0	0	0	0	0	0	0
Goaur	31	0	7	32	21	50	238	0	0	0	0	0
Goboh	0	0	0	0	0	0	0	0	0	0	0	0
Gogra	0	0	40	3	0	0	0	0	0	0	0	0
Gojav	0	0	0	0	0	25	0	0	0	0	0	0
Golan	0	0	0	0	0	0	14	0	0	6	0	0
Gomic	0	0	0	0	0	0	0	0	47	0	0	12
Gomin	0	0	0	0	0	0	0	0	0	0	0	0
Gopar	0	73	0	0	71	12	14	6	0	23	0	0
Golag	0	0	0	0	0	0	7	0	0	0	0	0

Table 31 (continued)

	site1-Dec	site2-Dec	site3-Dec	site4-Dec	site5-Dec	site6-Dec	site7-Dec	site8-Dec	site9-Dec	site10-Dec	site11-Dec	site12-Dec
Gopro	0	0	0	0	0	0	0	0	0	0	0	0
Gopse	0	0	0	0	0	0	0	0	0	0	0	0
Gopum	0	20	270	5	0	25	0	13	0	0	0	0
Gopal	0	0	0	0	0	0	0	0	0	0	0	0
Gotru	0	0	0	0	0	0	0	0	0	0	0	12
Gyobs	0	0	0	0	0	0	0	0	0	0	0	0
Gysca	0	0	0	0	0	0	0	0	0	0	0	0
Gyspe	0	5	0	0	0	0	0	32	18	11	5	0
Kosp1	0	0	0	0	0	37	0	0	0	0	0	6
Lumit	0	0	0	0	14	0	0	0	0	0	0	0
Lulan	0	0	0	0	0	0	0	0	0	0	0	0
Lusax	5	0	0	0	0	12	0	0	0	0	0	0
Lusim	51	0	0	0	0	0	0	0	0	0	0	0
Luter	0	0	0	0	29	0	0	0	0	0	0	0
Lupse	0	0	0	0	0	0	0	0	0	0	0	6
Lusp1	0	0	0	0	0	0	0	0	0	0	0	29
Myagr	0	0	0	0	14	12	0	0	0	0	0	0
Naamp	0	0	0	0	0	0	0	32	6	0	0	0
Naant	0	0	0	0	0	0	0	0	52	6	0	0
Nacap	5	0	0	0	0	0	0	0	0	0	0	0
Nacat	0	0	0	0	0	0	0	0	0	0	0	0
Nacat	0	0	0	0	0	0	0	0	0	0	0	0
Nacin	0	0	0	0	0	0	0	0	0	0	0	0
Nacry	0	0	0	0	0	0	0	0	0	0	0	0
Naeri	0	0	0	0	0	0	0	0	0	0	0	0
Naesc	0	32	0	0	0	0	0	0	0	0	0	0
Nager	0	0	0	0	0	0	0	0	177	40	19	29
Nahei	169	0	7	5	0	0	0	0	0	0	0	0
Nahin	118	0	0	0	0	0	0	0	0	0	0	0
Najac	0	0	0	0	0	0	0	0	0	0	0	0
Narad	0	0	0	0	3	0	0	0	0	0	0	0
Narei	0	0	4	0	0	0	0	0	0	0	0	0
Naros	0	0	0	0	0	0	0	0	0	0	0	0
Nasim	0	3	0	5	0	0	0	0	0	28	0	17
Nasup	0	0	0	0	207	12	14	121	71	28	0	100
Namer	164	0	0	0	71	37	0	0	0	0	0	0
Navan	0	0	0	0	0	0	0	0	0	17	23	0
Navia	0	0	0	0	43	0	0	0	0	0	0	0
Navir	0	0	0	0	0	0	0	0	0	0	0	0
Naaqu	20	0	0	0	0	0	0	0	0	0	0	0
Nabel	0	17	0	0	0	0	0	0	0	0	0	0
Nalei	0	0	0	0	0	0	0	0	0	0	0	0
Napar	374	0	0	0	0	25	0	0	0	0	0	0
Navek	0	5	0	14	0	0	0	83	29	0	0	0

Table 31 (continued)

	site1-Dec	site2-Dec	site3-Dec	site4-Dec	site5-Dec	site6-Dec	site7-Dec	site8-Dec	site9-Dec	site10-Dec	site11-Dec	site12-Dec
Nasp1	0	0	0	0	0	0	0	0	0	0	0	0
Nasp2	0	0	0	0	0	0	0	0	0	0	0	0
Nanan	0	0	0	0	7	0	0	0	0	0	0	0
Neaff	0	0	0	0	0	0	0	0	0	0	0	0
Nesev	0	0	0	0	0	0	0	0	0	0	0	0
Nebin	0	0	0	0	0	0	0	0	0	0	0	0
Nedub	0	0	0	0	0	0	0	0	0	0	0	0
Negra	0	0	0	0	0	0	0	0	0	0	0	0
Niamp	0	0	0	0	0	0	0	0	0	0	0	0
Niang	0	0	0	0	0	0	0	0	0	0	0	0
Nicla	0	2	0	0	0	0	0	0	0	11	0	29
Nicom	0	0	0	0	0	0	0	0	0	0	0	0
Nibal	0	0	0	0	0	0	0	0	0	0	0	0
Nides	0	0	0	0	0	0	0	6	0	0	0	0
Nidis	0	3	0	3	7	0	7	45	0	0	19	12
Nicon	56	0	0	0	0	0	0	0	0	0	0	6
Nifre	0	0	0	0	0	12	0	13	0	0	0	0
Nifru	0	0	0	0	0	0	0	0	12	0	5	29
Nigra	0	5	0	0	0	0	0	6	0	0	0	12
Nihan	0	0	0	0	0	0	0	0	0	0	0	0
Nihoe	0	0	0	0	0	0	0	0	0	0	5	12
Niint	0	0	0	0	0	0	0	13	0	0	0	0
Nimin	0	0	0	0	0	0	0	6	0	0	0	0
Nilor	0	0	0	0	0	0	0	0	0	0	0	0
Nipal	0	75	0	3	100	62	7	217	448	40	111	215
Nideb	10	7	0	0	0	0	0	0	0	0	0	0
Nipar	0	0	0	0	0	0	0	0	0	0	0	0
Niper	0	0	0	0	0	0	0	0	6	0	0	0
Nipum	0	0	0	0	0	0	0	0	0	0	0	0
Nirec	10	0	0	24	36	0	7	0	0	0	9	23
Nirev	0	2	0	0	7	0	0	0	0	0	0	0
Nisal	0	0	0	0	0	0	0	0	0	0	0	0
Nisca	0	0	0	0	0	0	0	0	0	0	0	0
Nisin	0	0	0	0	0	0	0	0	0	0	0	0
Nisol	0	0	0	0	0	0	0	0	0	0	0	0
Nivut	0	3	0	0	0	0	36	0	0	0	0	6
Haamp	0	0	0	0	0	12	0	0	0	0	0	0
Trsal	0	0	0	0	0	0	0	0	0	0	0	6
Piaci	0	0	0	0	0	0	7	0	0	0	0	0
Pibic	0	0	0	0	0	0	0	0	0	0	0	0
Pioom	0	0	0	0	0	0	0	0	0	0	0	0
Pipse	0	0	0	0	0	0	0	0	0	0	0	0
Pisub	15	0	0	0	0	0	0	0	0	0	0	0
Piint	0	0	0	0	0	0	0	0	0	0	0	0

Table 31 (continued)

	site1-Dec	site2-Dec	site3-Dec	site4-Dec	site5-Dec	site6-Dec	site7-Dec	site8-Dec	site9-Dec	site10-Dec	site11-Dec	site12-Dec
Plcap	0	0	0	0	0	0	0	0	0	0	0	0
Plwit	0	0	0	0	0	0	0	0	0	0	0	0
Plele	0	0	0	0	0	0	0	0	0	0	0	0
Plpro	0	0	0	0	0	0	0	0	0	6	0	0
Plfre	0	2	0	3	29	12	29	262	47	159	143	0
Plros	0	0	0	0	0	0	0	0	0	0	0	0
Plsp1	0	0	0	0	0	0	0	0	0	0	0	0
Plneg	0	0	0	0	0	0	0	0	0	17	23	6
Reuni	0	0	0	0	0	0	0	0	0	0	0	0
Rhcon	0	0	0	0	0	0	0	0	0	0	0	0
Rhgib	0	0	0	0	0	0	0	0	0	0	0	0
Rhmus	0	0	29	0	0	0	0	0	0	0	0	0
Stanc	0	0	0	0	0	0	0	0	0	0	0	0
Stkri	10	0	0	0	0	0	0	0	0	0	0	0
Stsmi	0	0	0	0	0	0	0	0	0	0	0	0
Stsp1	0	0	0	0	0	0	0	0	6	0	0	0
Sestr	0	44	0	24	221	25	14	141	183	159	717	337
Selba	0	0	0	0	0	0	0	0	0	0	0	0
Selbl	0	0	0	0	7	0	0	0	0	0	0	0
Secap	0	0	0	0	0	0	0	0	0	0	0	0
Selse	0	0	0	0	0	0	0	0	0	0	0	0
Sella	0	0	0	8	7	0	0	6	12	0	0	0
Selpa	0	0	0	0	0	0	0	0	0	0	0	0
Seobe	0	0	0	0	0	0	0	0	0	0	0	0
Selst	5	0	0	0	0	0	0	0	0	0	0	0
Selsu	0	0	7	3	0	0	0	0	0	0	0	0
Sesp1	0	0	0	0	0	0	0	0	0	0	0	0
Sesp2	0	0	0	0	0	0	0	0	0	0	0	0
Suang	0	0	0	0	0	0	0	0	0	0	0	0
Sufon	0	0	0	0	0	0	0	0	0	6	0	0
Sulin	0	0	0	0	0	0	0	0	0	0	0	0
Suspl	0	0	0	0	0	0	0	0	0	0	0	0
Suost	0	0	0	0	29	0	7	0	6	0	0	6
Suten	0	0	0	0	0	0	0	26	0	0	0	0
Suner	0	0	0	0	0	0	0	0	6	6	0	0
Susp1	0	0	0	0	0	0	0	0	0	0	0	0
Susp2	0	0	0	0	0	0	0	0	0	0	0	0
Susp3	0	0	0	0	0	0	0	0	0	0	0	0
Susp4	0	0	0	0	0	0	0	0	0	0	0	0
Ularc	0	0	76	0	0	12	7	6	6	0	5	0
Ullan	0	0	0	11	29	25	22	0	0	0	9	6
Ulram	0	2	0	0	0	0	0	0	0	0	0	0
Ulull	0	0	0	5	36	0	50	0	0	154	9	0

Table 32 The results of diatom cell counted of the Wang River in January 2012

	site1-Jan	site2-Jan	site3-Jan	site4-Jan	site5-Jan	site6-Jan	site7-Jan	site8-Jan	site9-Jan	site10-Jan	site11-Jan	site12-Jan
Augra	0	0	0	0	0	0	0	10	0	0	0	0
Cymen	0	0	0	0	0	0	5	20	0	0	0	0
Cysha	0	0	0	0	0	0	0	0	0	0	0	0
Diste	0	0	41	15	0	43	0	10	0	0	11	38
Acinf	0	0	0	0	0	0	0	0	0	0	0	0
Acobl	0	0	0	0	0	0	0	0	3	0	0	0
Acpus	0	0	0	0	0	0	0	0	0	0	0	0
Acexm	0	0	0	0	0	0	0	0	0	0	0	15
Acexi	0	0	1282	172	0	0	0	0	5	0	5	0
Acjak	18	0	0	0	0	0	0	0	0	0	0	0
Aclat	13	0	0	0	9	4	0	0	0	0	0	0
Acmim	75	267	38	40	83	715	104	0	0	753	149	83
Acsta	13	0	6	0	0	0	0	0	0	0	0	0
Acsub	0	0	0	0	0	0	0	0	0	0	0	0
Acsp1	0	0	0	0	0	0	0	0	0	0	0	0
Acsp2	0	0	0	0	0	0	0	0	0	0	0	0
Acsp3	0	0	0	0	0	0	0	0	0	0	0	0
Adbry	0	0	0	0	0	0	0	0	0	0	0	0
Amlir	0	0	0	0	0	0	0	15	11	0	0	0
Ansp1	0	0	0	0	0	0	0	0	0	0	0	0
Bamic	0	6	0	0	0	0	0	0	0	0	0	0
Bapax	0	12	0	0	0	0	5	0	0	10	0	45
Brneo	0	0	69	20	9	0	0	0	0	0	0	8
Cabac	0	0	0	0	0	0	0	0	0	0	0	0
Caalp	0	0	0	0	0	0	0	0	0	0	0	0
Capei	0	0	0	0	0	0	0	0	0	0	0	0
Caven	0	0	0	0	0	0	0	0	0	5	0	0
Caten	0	0	0	0	0	0	0	0	0	0	0	0
Casp1	0	0	0	0	0	4	0	0	0	0	0	0
Casp2	0	0	0	0	0	0	0	0	0	0	0	0
Copla	0	6	0	0	19	0	180	10	0	198	5	0
Crmoi	0	0	0	0	0	0	0	0	0	0	0	0
Crmos	0	0	0	0	0	0	0	0	0	0	0	0
Crvix	0	0	0	0	0	0	0	0	0	0	0	8
Cramb	0	0	0	0	0	0	0	0	0	0	0	0
Cyaff	0	61	0	0	19	0	47	0	0	0	37	8
Cybif	581	0	0	0	0	0	0	0	0	0	0	0
Cypar	0	0	113	43	0	47	5	0	0	0	0	0
Cysum	0	18	0	0	0	0	0	0	0	0	0	0
Cytum	9	18	0	0	9	0	0	0	0	5	0	0
Cytur	0	6	0	0	0	0	0	25	8	76	0	0
Cyged	0	0	38	0	0	0	0	0	0	0	0	0
Cysub	0	0	0	0	0	0	0	0	0	5	0	0
Cysp1	0	0	0	0	0	0	0	0	0	0	0	0

Table 32 (continued)

	site1-Jan	site2-Jan	site3-Jan	site4-Jan	site5-Jan	site6-Jan	site7-Jan	site8-Jan	site9-Jan	site10-Jan	site11-Jan	site12-Jan
Cysp2	0	0	0	0	0	0	0	0	0	0	0	0
Dicon	0	0	0	0	0	0	0	0	0	0	0	0
Dedel	123	0	0	0	0	0	0	0	0	0	0	0
Desp1	0	0	0	0	0	0	0	0	0	0	0	0
Diobl	26	0	0	0	0	0	14	15	5	0	0	0
Diocu	0	0	0	0	0	0	0	0	0	0	0	0
Dipse	0	0	0	0	0	0	0	0	0	0	0	0
Enelg	0	0	0	0	0	0	0	0	0	0	0	0
Engae	0	0	0	0	0	0	0	0	0	0	0	0
Enmal	194	0	0	0	0	0	0	0	0	0	0	0
Enmes	0	0	0	0	0	0	0	10	0	0	0	0
Enmin	0	0	0	0	0	0	0	0	0	0	0	0
Enpro	0	0	0	0	0	0	0	0	0	0	0	0
Ensp1	0	0	0	0	0	0	0	0	0	0	0	0
Enlee	13	0	0	0	0	0	0	0	0	0	0	0
Enmic	0	0	50	7	0	0	0	0	0	0	0	0
Eomin	0	0	0	0	0	0	0	0	0	0	0	30
Epcis	0	0	6	0	0	0	0	0	0	0	0	0
Eubil	0	0	0	0	0	0	0	0	0	0	0	0
Eucur	0	0	0	0	0	0	0	0	0	0	0	0
Eumin	0	0	0	0	0	9	0	0	0	0	0	0
Fapyg	0	0	0	0	0	0	0	0	0	0	0	0
Frcap	0	0	0	0	0	0	0	0	0	0	0	0
Frrum	0	0	6	7	0	0	0	0	0	0	0	0
Frvau	0	0	0	0	0	0	0	0	0	0	0	0
Frwei	4	0	0	0	0	0	0	0	0	0	0	0
Haven	0	0	0	0	0	0	0	0	0	0	0	0
Hamon	0	0	0	0	0	13	5	10	0	0	0	8
Habul	0	0	0	0	0	0	0	0	0	0	0	0
Hipse	0	0	0	0	0	0	0	0	0	20	16	23
Hiavi	0	0	0	0	0	0	0	0	5	0	0	0
Gecum	0	0	0	0	0	0	0	0	0	0	0	0
Gedec	0	0	0	0	0	4	0	0	0	0	0	0
Gepun	0	0	0	0	0	0	0	0	5	0	0	0
Goaff	0	0	0	0	0	0	0	0	0	0	0	0
Goaur	31	0	0	31	0	265	71	0	0	5	0	0
Goboh	0	0	0	0	0	0	0	0	0	0	0	0
Gogra	0	0	3	0	19	0	0	0	3	0	0	0
Gojav	0	0	0	0	0	30	5	0	0	0	0	0
Golan	0	0	0	0	0	0	0	0	0	0	0	0
Gomic	0	0	0	0	0	9	0	0	11	0	0	0
Gomin	0	0	0	0	0	0	0	0	0	0	0	0
Gopar	0	67	0	0	9	13	0	20	0	15	5	0
Golag	0	0	0	0	0	0	0	0	0	0	0	8

Table 32 (continued)

	site1-Jan	site2-Jan	site3-Jan	site4-Jan	site5-Jan	site6-Jan	site7-Jan	site8-Jan	site9-Jan	site10-Jan	site11-Jan	site12-Jan
Gopro	0	0	0	0	0	0	0	0	0	0	0	0
Gopse	0	0	0	0	0	0	0	0	0	0	0	0
Gopum	0	73	19	0	0	17	0	0	0	0	0	0
Gopal	0	0	0	0	0	0	0	0	0	0	0	0
Gotru	0	0	0	0	0	0	0	0	0	0	0	23
Gyobs	0	0	0	0	0	0	0	0	0	0	0	0
Gysca	0	0	0	0	0	0	0	10	0	5	0	0
Gyspe	0	0	0	0	0	0	5	0	5	15	0	0
Kosp1	0	0	0	0	0	4	0	0	0	0	0	0
Lumit	0	0	0	0	0	0	0	0	0	0	0	0
Lulan	0	0	0	0	0	0	0	0	0	0	0	0
Lusax	4	0	0	0	0	13	0	0	0	0	0	0
Lusim	44	0	0	0	0	0	5	0	0	0	0	0
Luter	0	0	0	0	19	0	0	0	0	0	0	0
Lupse	0	0	0	0	0	0	0	0	0	0	0	8
Lusp1	0	0	0	0	0	0	0	0	0	0	0	15
Myagr	0	0	0	0	0	0	0	0	0	0	0	0
Naamp	0	0	13	0	9	0	0	85	3	0	0	0
Naant	0	0	0	0	0	0	0	0	3	5	11	0
Nacap	4	0	0	0	0	0	0	0	0	0	0	0
Nacat	0	0	0	0	0	0	0	0	0	0	0	0
Nacat	0	0	0	0	0	0	0	0	0	0	0	0
Nacin	0	0	0	0	0	0	0	0	0	0	0	0
Nacry	0	0	0	0	0	0	0	0	0	0	0	0
Naeri	0	0	0	0	0	0	0	0	0	0	0	0
Naesc	0	61	0	0	0	0	0	0	0	0	0	0
Nager	0	6	0	0	0	0	0	0	35	0	16	15
Nahei	150	0	41	0	0	0	0	0	0	0	0	0
Nahin	97	0	0	0	0	0	0	0	0	0	0	0
Najac	0	0	0	0	0	0	0	0	0	0	0	0
Narad	0	0	0	0	0	0	0	0	0	0	0	0
Narei	0	0	9	15	0	0	0	0	0	0	0	15
Naros	0	0	0	0	0	0	0	0	0	0	0	0
Nasim	0	6	9	30	0	0	5	0	0	10	11	0
Nasup	0	0	0	0	19	4	14	25	8	5	0	150
Namer	141	0	0	0	46	9	9	0	0	0	0	0
Navan	0	0	0	0	0	0	0	0	0	10	5	0
Navia	0	0	0	0	9	0	0	0	0	0	0	0
Navir	0	0	0	0	0	0	0	0	0	0	0	0
Naaqu	18	0	0	0	0	0	0	0	0	0	0	0
Nabel	0	36	0	0	0	0	0	0	0	0	0	0
Nalei	0	0	0	0	0	0	0	0	0	0	0	0
Napar	348	0	0	0	0	9	0	0	0	0	0	0
Navek	0	6	0	45	0	0	0	95	0	5	0	0

Table 32 (continued)

	site1-Jan	site2-Jan	site3-Jan	site4-Jan	site5-Jan	site6-Jan	site7-Jan	site8-Jan	site9-Jan	site10-Jan	site11-Jan	site12-Jan
Nasp1	0	0	0	0	0	0	0	0	0	0	0	0
Nasp2	0	0	0	0	0	0	0	0	0	0	0	0
Nanan	0	0	0	0	0	0	0	0	3	0	0	0
Neaff	0	0	0	0	0	0	0	0	0	0	0	0
Nesev	0	0	0	0	0	0	0	0	0	0	0	0
Nebin	0	0	0	0	0	0	5	0	0	0	0	0
Nedub	0	0	0	0	0	0	0	0	0	0	0	0
Negra	0	0	0	0	0	0	0	0	0	0	0	0
Niamp	0	0	0	0	0	0	0	0	0	0	0	0
Niang	0	0	0	0	0	0	0	0	0	0	5	0
Nicla	0	6	0	0	0	0	0	0	3	5	0	53
Nicom	0	0	0	0	0	0	0	0	0	0	0	0
Nibal	0	0	0	0	0	0	0	0	0	0	0	0
Nides	0	0	0	0	0	9	0	0	0	0	0	0
Nidis	0	48	0	0	9	0	0	0	0	0	5	38
Nicon	48	0	0	0	0	0	0	0	0	0	0	0
Nifre	0	0	0	0	0	9	0	0	0	0	0	0
Nifru	0	0	9	0	0	0	0	0	24	5	21	53
Nigra	0	6	0	0	0	0	0	0	3	0	0	0
Nihan	0	0	0	0	0	0	0	0	0	0	0	0
Nihoe	0	0	0	0	0	0	0	0	0	0	5	158
Niint	0	0	0	0	0	0	0	0	0	0	0	0
Nimin	0	0	0	0	0	0	0	0	0	0	0	0
Nilor	0	6	0	0	0	0	0	0	0	0	0	0
Nipal	0	158	0	60	158	0	0	482	201	153	165	113
Nideb	9	0	0	0	0	0	0	0	0	0	0	0
Nipar	0	0	0	0	0	0	0	10	0	0	0	0
Niper	0	0	0	0	0	0	5	0	0	0	0	0
Nipum	0	0	0	0	0	4	0	0	0	0	0	0
Nirec	9	0	16	22	37	4	9	0	0	0	5	30
Nirev	0	0	0	0	0	0	0	0	0	0	5	0
Nisal	0	0	0	0	0	0	0	0	0	0	0	0
Nisca	0	0	0	0	0	0	0	0	0	0	0	0
Nisin	0	0	0	0	0	0	0	0	0	0	0	0
Nisol	0	0	0	0	0	0	0	0	0	0	0	0
Nivut	0	6	0	0	0	4	19	0	0	0	11	0
Haamp	0	0	0	0	9	0	0	0	0	0	0	0
Trsal	0	12	0	0	0	0	0	0	0	0	0	0
Piaci	0	0	0	0	0	0	0	0	0	0	0	0
Pibic	0	0	0	0	0	0	0	0	0	0	0	0
Pioom	0	0	0	0	0	0	0	0	0	0	0	0
Pipse	0	0	0	0	0	0	0	0	0	0	0	0
Pisub	13	0	0	0	0	0	0	0	0	0	0	0
Piint	0	0	3	0	0	0	0	0	0	0	0	0

Table 32 (continued)

	site1-Jan	site2-Jan	site3-Jan	site4-Jan	site5-Jan	site6-Jan	site7-Jan	site8-Jan	site9-Jan	site10-Jan	site11-Jan	site12-Jan
Plcap	0	0	0	0	0	0	0	0	0	0	0	0
Plwit	0	0	0	0	0	0	0	0	0	0	0	0
Plele	0	0	0	0	0	0	0	0	0	0	0	0
Plpro	0	0	0	0	0	0	0	0	0	0	0	0
Plfre	0	0	0	0	37	9	19	106	62	107	192	30
Plros	0	12	0	0	0	0	0	0	11	5	0	0
Plsp1	0	0	0	0	0	0	0	0	0	0	0	0
Plneg	0	0	0	0	0	0	0	0	0	5	16	23
Reuni	0	0	0	0	0	0	0	0	0	0	0	0
Rhcon	0	0	0	0	0	0	0	0	0	0	0	0
Rhgib	0	0	0	0	0	0	0	0	0	0	0	0
Rhmus	0	0	9	0	0	0	0	0	0	0	0	0
Stanc	0	0	0	0	0	0	0	0	0	0	0	0
Stkri	9	0	0	0	0	0	0	0	0	0	0	0
Stsmi	0	0	0	0	0	0	0	0	0	0	0	0
Stsp1	0	0	0	0	0	0	0	0	3	0	0	0
Sestr	0	48	0	60	93	17	33	30	35	163	160	113
Selba	0	0	0	7	0	0	0	0	0	0	0	0
Selbl	0	0	0	0	0	0	0	0	0	0	0	0
Secap	0	0	0	0	0	0	0	0	0	0	0	0
Selse	0	0	0	0	0	0	0	0	0	0	0	0
Sella	0	0	0	15	0	0	0	0	3	5	0	0
Selpa	0	0	0	0	0	0	0	0	0	0	0	0
Seobe	0	6	0	0	0	0	0	0	3	0	0	0
Selst	4	0	0	0	0	0	0	0	0	0	0	0
Selsu	0	0	9	0	0	0	0	0	0	0	0	0
Sesp1	0	0	0	0	0	0	0	0	0	0	0	0
Sesp2	0	0	0	0	0	0	0	0	0	0	0	0
Suang	0	12	0	0	0	0	0	0	0	0	0	0
Sufon	0	12	0	0	0	0	0	5	0	15	5	0
Sulin	0	0	0	0	0	0	0	5	0	5	0	8
Suspl	0	6	0	0	0	0	0	0	0	0	0	0
Suost	0	0	0	0	0	0	0	0	0	0	0	0
Suten	0	0	0	0	0	0	0	0	0	0	0	0
Suner	0	0	0	0	0	0	0	5	0	5	0	0
Susp1	0	0	0	0	0	0	0	0	0	0	0	0
Susp2	0	0	0	0	0	0	0	0	0	0	0	0
Susp3	0	0	0	0	0	0	0	0	0	0	0	0
Susp4	0	6	0	0	0	0	0	0	0	0	0	0
Ularc	0	0	13	0	0	0	5	0	0	0	0	0
Ullan	0	0	0	25	9	13	24	0	0	0	5	0
Ulram	0	6	0	0	0	0	0	0	0	0	0	0
Ulull	0	0	19	0	0	30	14	15	21	168	5	0

Table 33 The results of diatom cell counted of the Wang River in February 2012

	site1-Feb	site2-Feb	site3-Feb	site4-Feb	site5-Feb	site6-Feb	site7-Feb	site8-Feb	site9-Feb	site10-Feb	site11-Feb	site12-Feb
Augra	0	0	0	0	3	6	0	0	37	0	0	0
Cymen	0	0	0	0	0	0	0	0	0	0	0	0
Cysha	0	0	0	0	0	0	0	0	0	0	0	0
Diste	0	0	48	0	3	176	97	13	0	0	23	0
Acinf	0	0	0	0	0	0	0	0	0	0	0	0
Acobl	0	2	0	0	0	0	0	0	0	0	0	0
Acpus	6	0	0	0	0	0	0	0	0	0	0	0
Acexm	0	2	0	0	0	0	0	0	0	0	0	9
Acexi	0	0	722	93	6	0	0	0	24	0	0	0
Acjak	0	0	0	0	0	0	0	0	0	0	0	0
Aclat	0	0	0	28	0	0	0	0	0	0	0	0
Acmim	17	188	9	46	40	264	65	0	0	772	88	35
Acsta	0	0	0	0	0	0	0	0	0	0	0	0
Acsub	0	0	0	0	0	13	0	0	0	0	0	0
Acsp1	0	0	0	0	0	0	0	0	0	0	0	0
Acsp2	0	0	0	0	0	0	0	0	0	0	0	0
Acsp3	11	0	0	0	0	0	0	0	0	0	0	0
Adbry	0	0	27	0	0	0	0	0	0	0	0	0
Amlir	0	0	0	19	3	0	0	13	0	0	0	2
Ansp1	0	0	0	0	0	0	0	0	0	0	0	0
Bamic	0	0	0	0	0	0	0	0	0	0	0	0
Bapax	0	2	0	0	0	0	0	0	0	13	0	0
Brneo	0	0	91	9	0	0	0	0	0	0	0	0
Cabac	11	0	0	0	0	0	0	0	0	0	0	0
Caalp	0	0	0	0	0	0	0	0	0	0	0	0
Capei	0	0	0	0	0	0	0	0	0	0	0	0
Caven	0	0	0	0	0	0	0	0	0	0	0	0
Caten	0	2	0	0	0	0	0	0	0	0	0	0
Casp1	0	0	0	0	0	0	0	0	0	0	0	0
Casp2	0	0	0	0	0	0	0	0	0	0	0	0
Copla	0	2	0	0	0	0	32	0	0	11	7	0
Crmoi	0	0	0	0	0	0	0	0	0	0	0	0
Crmos	11	0	0	0	0	0	0	0	0	0	0	0
Crvix	0	0	0	0	0	0	0	0	0	0	0	0
Cramb	0	0	0	0	0	0	0	0	0	0	0	0
Cyaff	0	20	0	0	11	0	323	0	0	0	10	0
Cybif	741	0	0	0	0	0	0	0	0	0	0	0
Cypar	0	0	45	0	0	19	0	0	0	0	0	0
Cysum	6	2	0	0	0	0	0	0	0	0	0	0
Cytum	22	4	0	0	0	0	0	0	0	0	0	11
Cytur	6	2	0	0	0	0	0	0	24	0	0	0
Cyged	0	0	103	0	0	0	0	0	0	0	0	0
Cysub	0	0	0	0	0	0	0	0	0	0	0	0
Cysp1	0	0	6	0	6	0	0	0	0	0	0	0

Table 33 (continued)

	site1-Feb	site2-Feb	site3-Feb	site4-Feb	site5-Feb	site6-Feb	site7-Feb	site8-Feb	site9-Feb	site10-Feb	site11-Feb	site12-Feb
Cysp2	0	0	0	0	0	0	0	0	0	0	0	0
Dicon	0	0	0	0	0	0	0	0	0	0	0	0
Dedel	242	0	0	0	0	0	0	0	0	0	0	0
Desp1	13	0	0	0	0	0	0	0	0	0	0	0
Diobl	56	2	0	9	6	0	0	0	4	0	0	0
Diocu	28	0	0	0	0	0	0	0	0	0	0	0
Dipse	6	0	0	0	0	0	0	0	0	0	0	0
Enelg	0	0	0	0	0	0	0	0	0	0	0	0
Engae	0	0	0	0	0	31	0	0	0	0	0	0
Enmal	489	0	0	0	0	0	0	0	0	0	0	0
Enmes	0	0	0	0	0	0	0	0	0	0	0	0
Enmin	0	0	0	0	0	0	0	0	0	0	0	0
Enpro	0	0	0	0	0	0	0	0	0	0	0	0
Ensp1	0	0	0	0	0	0	0	0	0	0	0	0
Enlee	107	0	0	0	0	0	0	0	0	0	0	0
Enmic	0	0	332	0	11	0	0	0	0	0	0	0
Eomin	0	0	0	0	0	0	0	0	0	0	0	0
Epcis	0	0	27	0	0	0	0	0	0	0	0	0
Eubil	0	0	3	0	0	0	0	0	0	0	0	0
Eucur	0	0	0	0	0	0	0	0	0	0	0	0
Eumin	0	0	0	0	0	0	0	0	0	0	0	0
Fapyg	0	0	0	0	0	0	0	0	0	0	0	0
Frcap	0	0	0	0	0	0	0	0	0	0	0	0
Frrum	0	0	3	9	0	0	0	0	0	0	0	0
Frvau	0	0	0	0	0	0	0	0	0	0	0	0
Frwei	0	0	0	0	0	0	0	0	12	0	0	0
Haven	0	0	0	0	0	0	0	0	0	0	0	0
Hamon	0	0	0	37	0	0	32	0	0	0	0	0
Habul	0	0	0	0	0	0	0	0	0	0	0	0
Hipse	0	0	0	0	0	0	0	0	0	19	10	2
Hiavi	0	0	0	0	0	0	0	0	4	0	0	0
Gecum	0	0	0	0	0	0	0	0	0	0	0	0
Gedec	0	0	0	0	0	0	0	0	0	0	0	0
Gepun	0	0	0	0	0	0	0	0	0	0	0	0
Goaff	0	0	3	0	0	0	0	0	0	0	0	0
Goaur	0	0	0	46	0	100	32	0	0	0	0	0
Goboh	0	0	0	0	0	0	0	0	0	0	0	0
Gogra	6	0	9	9	0	0	0	0	0	0	0	0
Gojav	0	0	0	0	0	13	0	0	0	0	0	0
Golan	0	0	0	0	0	0	0	0	0	0	0	0
Gomic	0	0	0	0	0	0	0	0	4	0	0	0
Gomin	0	0	0	0	0	0	0	0	0	0	0	0
Gopar	0	20	0	0	6	0	194	20	0	13	14	0
Golag	0	0	0	0	0	0	0	0	0	0	0	0

Table 33 (continued)

	site1-Feb	site2-Feb	site3-Feb	site4-Feb	site5-Feb	site6-Feb	site7-Feb	site8-Feb	site9-Feb	site10-Feb	site11-Feb	site12-Feb
Gopro	0	0	0	0	0	0	0	0	0	0	0	0
Gopse	0	0	0	0	0	0	0	0	0	0	0	0
Gopum	0	26	15	0	0	19	0	0	0	0	0	0
Gopal	0	0	0	0	0	0	0	0	0	0	0	0
Gotru	0	0	0	0	0	0	0	0	0	0	0	2
Gyobs	0	0	0	0	0	0	0	0	0	0	0	0
Gysca	0	0	0	0	0	0	32	0	0	0	0	0
Gyspe	0	0	0	0	0	0	0	0	12	0	0	0
Kosp1	0	0	6	0	0	69	0	0	0	0	0	0
Lumit	0	0	0	0	0	0	0	0	0	0	0	0
Lulan	0	0	0	0	0	0	0	0	0	0	0	2
Lusax	0	0	0	0	0	0	0	0	0	0	0	0
Lusim	0	0	0	0	0	0	0	0	0	0	0	0
Luter	0	0	0	0	11	0	0	0	0	0	0	0
Lupse	0	0	0	0	0	0	0	0	0	0	0	4
Lusp1	0	0	0	0	0	0	0	27	0	0	0	7
Myagr	0	0	0	0	9	0	0	0	0	0	0	0
Naamp	0	0	0	0	0	0	0	13	0	0	0	0
Naant	0	0	0	0	0	0	0	0	0	0	0	0
Nacap	0	0	0	0	0	0	0	0	0	0	0	0
Nacat	0	0	0	0	0	0	0	0	0	0	0	0
Nacat	0	0	0	0	3	0	0	0	0	0	0	0
Nacin	0	0	0	0	0	0	0	0	0	0	0	0
Nacry	0	0	0	0	0	0	0	0	0	0	0	0
Naeri	0	0	0	0	0	0	0	0	0	0	0	0
Naesc	0	10	0	0	0	0	0	0	0	0	0	0
Nager	0	0	0	0	0	0	16	0	8	0	0	0
Nahei	0	0	27	0	0	0	16	0	0	0	0	0
Nahin	11	0	0	0	0	0	32	0	0	0	0	4
Najac	0	0	0	0	0	0	0	0	0	0	0	0
Narad	0	0	0	0	0	0	0	0	0	0	3	0
Narei	0	0	18	46	0	0	0	0	0	0	0	4
Naros	0	0	0	0	0	0	0	0	0	0	0	0
Nasim	0	4	0	9	0	0	0	0	0	0	0	0
Nasup	0	0	0	0	40	0	0	13	0	0	0	73
Namer	39	0	0	0	46	6	0	0	0	0	0	0
Navan	0	0	0	0	0	0	0	0	0	13	0	0
Navia	0	2	0	0	6	19	0	0	0	0	0	0
Navir	0	0	0	0	0	0	0	0	0	0	0	0
Naaqu	0	0	0	0	0	0	0	0	0	0	0	0
Nabel	0	8	0	0	0	0	16	0	0	0	0	0
Nalei	0	0	3	0	0	0	0	0	0	0	0	0
Napar	56	0	0	0	0	113	0	0	0	0	0	0
Navek	0	0	0	37	0	0	97	34	12	0	0	0

Table 33 (continued)

	site1-Feb	site2-Feb	site3-Feb	site4-Feb	site5-Feb	site6-Feb	site7-Feb	site8-Feb	site9-Feb	site10-Feb	site11-Feb	site12-Feb
Nasp1	0	0	0	0	0	0	0	0	0	0	0	0
Nasp2	0	0	0	0	0	0	0	0	0	0	0	0
Nanan	0	0	0	0	0	0	0	0	0	0	0	0
Neaff	0	0	0	0	0	0	0	0	0	0	0	0
Nesev	0	0	0	0	0	0	0	0	0	0	0	0
Nebin	0	0	0	9	0	0	0	0	0	0	0	0
Nedub	0	2	0	0	0	0	0	0	0	0	0	0
Negra	0	0	0	0	0	0	0	0	0	0	0	0
Niamp	0	0	6	0	0	0	0	0	0	0	0	0
Niang	0	0	0	0	0	0	0	0	0	0	0	0
Nicla	0	2	0	0	0	0	0	0	0	0	0	62
Nicom	0	2	0	0	0	0	0	0	0	0	0	0
Nibal	0	0	0	0	0	0	0	0	0	0	0	0
Nides	0	0	0	0	0	0	0	0	0	0	0	0
Nidis	0	8	0	0	11	0	0	0	12	0	2	4
Nicon	0	0	0	0	0	0	0	0	0	0	0	0
Nifre	0	0	0	0	0	6	0	0	0	0	0	0
Nifru	0	0	0	0	0	0	0	0	12	25	5	11
Nigra	0	2	0	0	0	0	0	0	12	0	0	0
Nihan	0	0	0	0	0	0	0	0	0	0	0	0
Nihoe	0	0	0	0	0	0	0	0	0	0	2	48
Niint	0	0	0	0	0	0	0	0	0	0	0	0
Nimin	0	0	0	0	0	0	0	0	0	0	0	0
Nilor	0	2	0	0	0	0	0	0	0	0	0	0
Nipal	0	52	0	19	86	0	32	476	285	152	123	37
Nideb	0	2	0	0	0	0	0	0	0	0	0	0
Nipar	0	0	0	0	0	0	0	0	0	0	0	0
Niper	0	0	0	0	0	0	0	0	0	0	0	22
Nipum	0	0	0	0	0	0	0	0	0	0	0	0
Nirec	0	0	3	19	46	0	0	0	0	0	2	29
Nirev	0	0	0	0	0	0	0	13	12	0	1	0
Nisal	0	0	0	0	0	0	0	0	0	0	0	0
Nisca	0	0	0	0	0	0	0	0	0	0	0	24
Nisin	0	0	0	0	0	0	0	0	0	0	0	0
Nisol	0	0	0	0	0	0	0	0	0	0	0	0
Nivut	0	2	0	0	0	44	323	0	0	0	0	0
Haamp	0	0	0	0	0	0	0	0	0	0	0	0
Trsal	0	0	0	0	0	0	0	0	0	0	0	0
Piaci	0	0	0	0	0	0	0	0	0	0	0	0
Pibic	0	0	0	0	0	0	0	0	0	0	0	0
Pioom	0	0	0	0	0	0	0	0	0	0	0	0
Pipse	6	0	3	0	0	0	0	0	0	0	0	0
Pisub	6	0	0	0	0	6	0	0	0	0	0	0
Piint	0	0	6	0	0	0	0	0	0	0	0	0

Table 33 (continued)

	site1-Feb	site2-Feb	site3-Feb	site4-Feb	site5-Feb	site6-Feb	site7-Feb	site8-Feb	site9-Feb	site10-Feb	site11-Feb	site12-Feb
Plcap	0	0	0	0	0	0	0	0	0	0	0	0
Plwit	0	0	0	0	0	0	0	0	0	0	0	0
Plele	0	0	0	0	0	0	0	0	0	0	0	0
Plpro	0	0	0	0	0	0	0	0	0	0	0	0
Plfre	0	0	0	0	3	6	0	0	12	19	37	4
Plros	0	0	0	0	6	0	0	0	0	0	0	0
Plsp1	0	0	0	0	0	0	0	0	0	0	0	0
Plneg	0	0	0	0	0	0	0	0	0	0	31	0
Reuni	0	0	0	0	0	0	32	0	0	0	0	0
Rhcon	0	0	0	0	0	0	0	0	0	0	0	0
Rhgib	0	0	6	0	0	0	0	0	0	0	0	0
Rhmus	0	14	30	0	0	0	0	0	0	0	0	0
Stanc	0	0	0	0	0	0	0	0	0	0	0	0
Stkri	0	0	0	9	0	0	0	0	0	0	0	0
Stsmi	0	0	0	0	0	0	0	0	0	0	0	0
Stsp1	0	0	0	0	0	0	0	0	0	0	0	0
Sestr	0	8	0	28	210	0	113	27	16	133	123	11
Selba	0	0	0	9	0	0	0	0	0	0	0	0
Selbl	0	0	0	0	0	0	0	0	0	0	0	0
Secap	0	0	0	0	0	0	0	0	0	0	0	0
Selse	0	0	0	0	0	0	0	0	0	0	0	0
Sella	0	0	0	0	0	0	0	0	24	0	0	0
Selpa	0	0	0	0	0	0	0	0	0	0	0	0
Seobe	0	0	0	0	0	0	0	0	0	0	0	0
Selst	0	0	0	0	0	0	0	0	0	0	0	0
Selsu	0	0	12	0	0	0	0	0	0	0	0	0
Sesp1	0	0	0	0	0	0	0	0	0	0	0	0
Sesp2	0	0	0	0	0	0	0	0	0	0	0	0
Suang	0	0	0	0	0	0	0	0	0	0	1	0
Sufon	0	0	0	0	0	0	0	0	0	13	0	0
Sulin	0	0	0	0	6	0	0	0	0	0	0	0
Suspl	0	2	0	0	0	0	0	0	0	0	0	0
Suost	0	0	0	0	3	0	0	0	0	0	0	0
Suten	0	0	0	0	0	0	0	0	0	0	0	0
Suner	0	0	0	0	0	0	0	0	0	0	0	0
Susp1	6	0	0	0	0	0	0	0	0	0	0	0
Susp2	0	0	0	0	0	0	0	0	0	0	0	0
Susp3	0	0	0	0	0	0	0	0	0	0	0	0
Susp4	0	2	0	0	0	0	0	0	0	0	0	0
Ularc	0	0	42	0	0	0	32	0	0	0	0	0
Ullan	0	0	0	9	0	0	0	0	0	0	31	0
Ulram	0	2	0	0	0	0	0	0	0	0	0	0
Ulull	0	0	12	9	0	0	0	0	0	6	42	0

Table 34 The results of diatom cell counted of the Wang River in March 2012

	site1-Mar	site2-Mar	site3-Mar	site4-Mar	site5-Mar	site6-Mar	site7-Mar	site8-Mar	site9-Mar	site10-Mar	site11-Mar	site12-Mar
Augra	0	0	20	0	0	0	0	0	0	0	0	0
Cymen	0	0	0	0	0	34	0	0	0	0	0	0
Cysha	0	0	0	5	0	0	0	0	0	0	0	0
Diste	0	0	99	39	0	121	3	0	0	0	0	8
Acinf	0	0	0	0	0	0	0	0	0	0	0	0
Acobl	0	0	0	0	0	0	0	0	0	0	0	0
Acpus	0	0	0	0	0	0	0	0	0	0	0	0
Acexm	0	10	0	0	0	13	0	0	0	0	0	8
Acexi	0	0	119	1400	0	0	0	0	129	0	0	0
Acjak	0	0	0	0	0	0	0	0	0	0	0	0
Aclat	0	0	7	0	38	20	0	0	0	0	0	0
Acmim	0	217	33	93	467	525	975	0	95	144	0	32
Acsta	14	0	26	0	0	0	0	0	0	0	0	0
Acsub	0	0	0	0	0	13	0	0	0	0	0	0
Acsp1	0	0	0	0	0	0	0	0	0	0	0	0
Acsp2	0	0	0	0	0	0	0	0	0	0	0	0
Acsp3	0	0	0	0	0	0	0	0	0	0	0	0
Adbry	0	0	79	0	0	0	0	0	0	0	0	0
Amlir	0	0	0	0	0	0	0	0	6	12	0	0
Ansp1	0	0	0	0	0	0	0	0	0	0	0	0
Bamic	0	0	0	0	0	0	0	0	0	0	0	0
Bapax	0	0	0	0	0	0	0	0	0	3	0	24
Brneo	0	0	191	157	0	0	0	0	0	0	0	0
Cabac	0	0	0	0	0	0	0	0	0	0	0	0
Caalp	0	0	0	0	0	0	0	0	13	0	0	0
Capei	0	0	0	0	0	0	0	0	0	0	0	0
Caven	0	0	0	0	0	7	0	0	0	0	0	0
Caten	0	0	0	0	0	0	0	0	0	0	0	0
Casp1	0	0	0	0	0	0	0	0	0	0	0	0
Casp2	0	10	0	0	0	0	0	0	0	0	0	0
Copla	0	5	0	5	0	0	59	53	0	32	0	0
Crmoi	0	0	0	0	0	0	0	0	0	0	0	0
Crmos	0	0	0	0	0	0	0	0	0	0	0	0
Crvix	0	0	0	0	0	0	0	0	0	0	0	0
Cramb	0	0	0	0	0	0	0	0	0	0	0	0
Cyaff	0	14	0	0	8	0	84	0	0	0	12	16
Cybif	336	0	0	0	0	0	0	0	0	0	0	0
Cypar	0	0	7	10	0	34	28	0	0	0	0	0
Cysum	14	0	0	0	0	0	0	0	0	0	0	0
Cytum	19	0	0	0	0	0	0	0	6	0	0	0
Cytur	10	0	0	0	0	0	0	115	19	16	12	0
Cyged	0	0	7	0	0	0	0	0	13	0	0	0
Cysub	0	0	0	0	0	0	0	0	82	0	0	0
Cysp1	0	0	0	0	0	0	3	0	0	0	0	0

Table 34 (continued)

	site1-Mar	site2-Mar	site3-Mar	site4-Mar	site5-Mar	site6-Mar	site7-Mar	site8-Mar	site9-Mar	site10-Mar	site11-Mar	site12-Mar
Cysp2	0	0	0	0	0	0	0	0	25	0	0	0
Dicon	0	0	0	0	0	0	0	0	0	0	0	0
Dedel	849	0	0	9	0	0	0	0	0	0	0	0
Desp1	0	0	0	0	0	0	0	0	0	0	0	0
Diobl	53	5	53	5	0	0	0	4	0	1	0	0
Diocu	43	0	0	0	0	0	0	0	0	0	0	0
Dipse	0	0	0	0	0	0	0	0	0	0	0	0
Enelg	0	0	0	5	0	0	0	0	0	0	0	0
Engae	0	0	0	472	0	0	0	0	0	0	0	0
Enmal	355	0	0	0	0	0	0	0	0	0	0	0
Enmes	0	0	0	0	0	0	0	4	0	0	0	0
Enmin	0	0	0	0	0	0	3	0	0	0	0	0
Enpro	0	0	0	0	0	0	0	0	0	0	0	0
Ensp1	0	0	0	0	0	0	0	0	3	0	0	0
Enlee	202	0	0	0	0	0	0	0	0	0	0	0
Enmic	283	0	106	15	15	0	0	0	0	0	0	0
Eomin	0	0	0	0	0	0	0	0	0	0	0	8
Epcis	0	0	7	0	0	0	0	0	0	0	0	0
Eubil	0	0	7	0	0	0	0	0	0	0	0	0
Eucur	0	0	0	0	0	0	0	0	0	0	0	0
Eumin	0	0	0	0	0	0	0	9	0	0	0	0
Fapyg	0	0	0	0	0	0	0	0	0	0	0	0
Frcap	0	0	0	0	0	0	28	0	0	0	0	0
Frrum	0	0	0	0	0	7	0	0	0	0	0	0
Frvau	0	0	0	0	0	0	3	0	0	0	0	0
Frwei	0	0	0	0	0	0	0	0	6	0	0	0
Haven	0	0	0	0	0	0	0	0	0	0	0	0
Hamon	0	0	0	0	0	54	0	22	0	0	0	0
Habul	0	0	0	0	0	0	0	0	0	0	0	0
Hipse	0	5	0	0	0	0	0	0	122	66	15	48
Hiavi	0	0	0	0	0	0	0	4	0	0	8	0
Gecum	0	0	0	0	0	0	0	0	0	0	0	0
Gedec	0	0	0	0	0	0	0	4	0	0	0	0
Gepun	0	0	0	0	0	0	0	22	0	0	0	0
Goaff	0	0	0	0	0	0	0	0	13	0	0	0
Goaur	5	0	33	54	0	87	52	0	0	0	0	0
Goboh	0	0	0	0	0	0	0	0	0	0	0	0
Gogra	34	0	13	103	8	0	0	0	0	0	0	0
Gojav	0	0	0	0	0	20	7	0	0	0	0	0
Golan	0	0	0	0	0	0	0	0	19	0	0	0
Gomic	0	0	0	0	0	0	0	0	13	0	0	0
Gomin	0	0	0	0	0	0	0	4	0	0	0	0
Gopar	0	0	0	0	4	20	14	35	0	0	8	0
Golag	0	0	0	0	0	0	0	0	0	0	0	0

Table 34 (continued)

	site1-Mar	site2-Mar	site3-Mar	site4-Mar	site5-Mar	site6-Mar	site7-Mar	site8-Mar	site9-Mar	site10-Mar	site11-Mar	site12-Mar
Gopro	0	0	0	0	0	0	0	0	0	0	0	0
Gopse	0	0	0	0	0	0	0	0	13	0	0	0
Gopum	0	0	40	0	0	47	0	44	0	0	0	0
Gopal	10	0	0	0	0	0	0	0	0	0	0	0
Gotru	0	0	0	0	0	0	0	0	0	0	0	0
Gyobs	0	0	0	0	0	0	0	0	6	0	0	0
Gysca	0	0	0	0	0	0	0	0	0	0	0	0
Gyspe	0	0	0	0	0	0	0	0	6	0	0	0
Kosp1	0	0	0	0	0	168	0	0	0	0	0	0
Lumit	0	0	0	0	0	0	0	0	0	0	0	0
Lulan	0	0	0	0	0	0	0	0	0	0	0	0
Lusax	0	0	0	0	0	0	0	0	0	0	0	0
Lusim	0	0	0	0	0	7	0	0	0	0	0	0
Luter	0	0	0	0	8	0	0	0	0	0	0	0
Lupse	0	0	0	0	0	0	0	0	0	0	0	0
Lusp1	0	0	0	0	0	0	0	9	0	0	4	32
Myagr	0	0	0	0	0	0	0	0	0	0	0	0
Naamp	0	0	33	0	0	0	0	13	0	0	0	0
Naant	0	0	0	0	0	0	0	0	0	0	0	0
Nacap	38	0	0	0	0	0	0	0	0	0	0	0
Nacat	0	0	0	0	0	0	0	0	0	0	0	0
Nacat	0	0	0	0	0	0	0	0	0	0	0	0
Nacin	0	0	0	0	0	0	0	0	0	0	0	0
Nacry	0	0	0	0	0	0	0	0	0	0	0	0
Naeri	0	0	0	0	0	0	0	0	0	0	0	0
Naesc	0	0	0	0	0	0	0	0	0	0	0	0
Nager	0	0	0	0	0	0	0	0	19	0	0	8
Nahei	0	0	218	0	0	0	0	0	0	0	0	0
Nahin	24	0	0	0	0	0	0	0	0	0	0	64
Najac	0	0	0	0	0	0	0	0	0	0	0	0
Narad	0	0	0	0	0	0	0	0	0	0	0	0
Narei	0	0	178	5	0	0	14	0	0	0	0	0
Naros	0	0	0	0	0	0	0	0	0	0	0	0
Nasim	0	5	59	0	0	7	0	0	0	16	0	0
Nasup	0	0	0	0	15	0	0	4	0	48	0	24
Namer	14	0	0	0	46	20	3	0	0	0	0	8
Navan	0	0	0	0	0	0	0	0	0	64	0	0
Navia	0	5	0	0	8	0	0	0	0	0	0	0
Navir	0	0	7	0	0	0	0	0	0	0	0	0
Naaqu	10	0	0	0	0	0	0	0	0	0	0	0
Nabel	0	19	0	0	0	0	0	0	0	0	0	0
Nalei	0	0	0	0	0	0	0	0	0	0	0	0
Napar	43	0	0	0	0	141	0	0	0	0	8	0
Navek	0	0	0	0	0	0	0	66	0	0	0	0

Table 34 (continued)

	site1-Mar	site2-Mar	site3-Mar	site4-Mar	site5-Mar	site6-Mar	site7-Mar	site8-Mar	site9-Mar	site10-Mar	site11-Mar	site12-Mar
Nasp1	0	0	0	0	0	0	0	0	0	0	0	0
Nasp2	0	0	0	0	0	0	0	0	0	0	0	0
Nanan	0	0	0	0	0	0	0	0	0	0	0	0
Neaff	14	0	0	0	0	0	0	0	0	0	0	0
Nesev	0	0	0	0	0	0	0	0	0	0	0	0
Nebin	0	0	0	0	0	0	0	0	0	0	0	0
Nedub	0	5	0	0	0	0	0	0	0	0	0	0
Negra	0	0	0	0	0	0	0	0	0	0	0	0
Niamp	0	0	7	0	0	0	0	0	0	0	0	0
Niang	0	0	0	0	0	0	0	0	0	0	0	0
Nicla	0	10	0	0	0	7	0	0	0	0	0	0
Nicom	0	0	0	0	0	0	0	0	0	0	0	0
Nibal	0	0	0	0	0	0	0	0	0	0	0	0
Nides	0	0	0	0	0	0	0	0	0	0	0	0
Nidis	0	0	0	0	0	0	0	0	0	0	0	0
Nicon	10	0	0	0	0	0	0	0	0	0	0	0
Nifre	0	0	0	0	0	0	0	0	0	0	0	0
Nifru	0	0	0	0	0	20	0	70	6	80	0	48
Nigra	0	0	0	0	4	0	0	17	13	32	0	16
Nihan	0	0	0	0	0	0	0	0	0	0	0	0
Nihoe	0	0	0	0	0	0	0	0	0	0	8	0
Niint	0	0	0	0	0	0	0	0	0	0	0	0
Nimin	0	0	0	0	0	0	0	0	0	0	0	0
Nilor	0	0	0	0	0	0	0	0	0	0	0	0
Nipal	0	34	0	0	172	27	0	420	322	449	62	104
Nideb	0	0	0	0	0	0	0	0	0	0	0	0
Nipar	0	0	0	0	0	0	0	0	0	0	0	0
Niper	0	0	0	0	0	0	0	0	0	0	69	64
Nipum	0	0	0	0	0	0	0	0	0	0	0	0
Nirec	10	0	119	0	11	13	0	0	0	0	12	0
Nirev	0	5	0	0	0	0	0	0	0	0	0	8
Nisal	0	0	0	0	0	0	0	0	0	0	0	0
Nisca	0	0	0	0	0	0	0	0	0	0	0	0
Nisin	0	0	0	0	0	0	0	0	0	0	0	0
Nisol	10	0	0	0	0	0	0	0	0	0	0	0
Nivut	0	24	0	0	0	27	0	48	0	48	8	16
Haamp	0	0	0	0	0	0	0	0	0	0	0	0
Trsal	0	0	0	0	0	0	0	0	0	0	0	0
Piaci	0	0	0	0	0	7	0	0	0	0	0	0
Pibic	0	0	0	0	0	0	0	0	0	0	0	0
Pioom	0	0	0	0	0	0	0	0	0	0	0	0
Pipse	19	0	0	0	0	0	0	0	0	0	0	0
Pisub	0	0	0	0	0	0	0	0	0	0	0	0
Piint	0	0	7	0	0	0	0	0	0	0	0	0

Table 34 (continued)

	site1-Mar	site2-Mar	site3-Mar	site4-Mar	site5-Mar	site6-Mar	site7-Mar	site8-Mar	site9-Mar	site10-Mar	site11-Mar	site12-Mar
Plcap	0	0	0	0	4	0	0	0	0	0	0	0
Plwit	0	0	0	0	0	0	0	0	0	0	0	0
Plele	0	0	0	0	0	0	0	0	0	0	0	0
Plpro	0	0	0	0	0	0	0	0	0	0	0	0
Plfre	0	0	0	0	11	0	0	159	0	80	104	16
Plros	0	10	0	0	0	0	0	0	0	32	4	0
Plsp1	0	0	0	0	0	0	0	0	0	0	0	0
Plneg	0	10	0	0	0	0	0	0	0	0	8	0
Reuni	0	0	0	0	0	0	0	0	0	0	0	0
Rhcon	0	0	0	0	0	0	0	0	0	0	0	0
Rhgib	0	0	0	0	0	0	0	0	0	0	0	0
Rhmus	0	0	0	0	0	40	0	0	0	0	0	0
Stanc	0	0	0	0	0	0	0	0	0	0	0	0
Stkri	43	0	0	0	0	0	0	0	0	0	0	0
Stsmi	0	0	0	0	0	0	0	0	0	0	0	0
Stsp1	0	0	0	0	0	0	0	4	0	0	0	0
Sestr	0	0	0	0	11	27	0	31	13	32	50	32
Selba	0	0	0	5	0	0	0	0	0	0	0	0
Selbl	0	5	0	0	0	0	0	0	0	0	0	0
Secap	0	0	0	0	0	0	0	0	0	0	0	0
Selse	0	0	0	0	0	0	0	0	0	0	0	0
Sella	38	0	0	5	0	0	0	9	6	0	0	0
Selpa	0	0	0	0	0	0	0	0	0	0	0	0
Seobe	0	0	0	0	0	0	0	0	0	0	0	0
Selst	0	0	0	0	0	0	0	0	0	0	0	0
Selsu	0	0	40	0	0	7	0	0	0	0	0	0
Sesp1	0	0	0	0	0	0	0	0	0	0	0	0
Sesp2	0	0	0	0	0	0	0	0	0	0	0	0
Suang	0	0	0	0	0	0	0	0	0	0	0	0
Sufon	0	0	0	0	0	0	0	0	0	2	8	0
Sulin	0	5	0	0	0	0	0	0	0	0	0	0
Suspl	0	0	0	0	0	0	0	0	0	0	0	0
Suost	0	0	0	0	0	0	0	4	0	0	0	0
Suten	0	0	0	0	0	0	0	4	6	0	0	0
Suner	0	0	0	0	0	0	0	0	0	0	0	0
Susp1	0	0	0	0	0	0	0	0	0	0	0	0
Susp2	0	0	0	0	0	0	0	0	3	0	0	0
Susp3	0	0	0	0	0	0	0	0	0	0	0	0
Susp4	0	0	0	0	0	0	0	0	0	0	0	0
Ularc	0	0	0	0	0	0	7	0	6	0	0	16
Ullan	0	0	0	118	0	0	17	0	0	0	0	8
Ulram	0	0	0	0	0	0	0	18	0	0	0	0
Ulull	0	0	0	44	0	0	17	4	6	48	23	0

Table 35 The results of diatom cell counted of the Wang River in April 2012

	site1-Apr	site2-Apr	site3-Apr	site4-Apr	site5-Apr	site6-Apr	site7-Apr	site8-Apr	site9-Apr	site10-Apr	site11-Apr	site12-Apr
Augra	0	0	0	0	0	7	21	0	0	0	0	0
Cymen	0	0	4	0	0	26	0	0	0	0	0	0
Cysha	0	0	7	0	0	7	0	0	0	0	0	0
Diste	0	0	22	0	0	215	159	0	0	0	0	9
Acinf	0	0	0	0	0	0	0	0	0	0	0	0
Acobl	0	7	0	0	0	0	0	0	0	0	0	4
Acpus	0	0	0	0	0	0	0	0	0	0	0	0
Acexm	0	7	7	0	0	7	0	0	0	2	6	0
Acexi	0	0	78	367	0	0	0	0	34	0	0	0
Acjak	0	0	0	0	0	0	0	0	0	0	0	0
Aclat	5	0	7	0	34	0	0	0	0	0	0	0
Acmim	146	1036	30	82	410	26	340	0	48	62	51	9
Acsta	0	0	0	0	0	0	0	0	0	0	0	0
Acsub	0	0	0	0	0	0	0	0	0	0	0	0
Acsp1	0	0	0	0	0	0	0	0	0	0	0	0
Acsp2	0	0	0	0	0	0	0	0	0	0	0	0
Acsp3	0	0	0	0	0	0	0	0	0	0	0	0
Adbry	0	0	7	0	0	0	0	0	0	0	0	0
Amlir	0	0	15	0	0	0	11	0	5	11	25	0
Ansp1	0	0	0	0	0	0	0	0	0	0	6	0
Bamic	0	0	7	0	0	0	21	0	0	0	0	0
Bapax	0	0	0	0	0	0	0	0	0	2	0	0
Brneo	0	0	22	26	0	0	0	0	0	0	0	0
Cabac	0	0	0	0	0	0	0	0	0	0	0	0
Caalp	0	0	0	0	0	0	0	0	0	0	0	0
Capei	0	0	0	0	0	0	0	0	0	0	0	0
Caven	0	0	0	0	0	0	0	0	0	2	0	0
Caten	0	13	0	0	0	0	0	0	0	0	0	0
Casp1	0	0	0	0	0	0	0	0	0	4	0	0
Casp2	0	0	0	0	0	0	0	0	0	0	0	0
Copla	0	7	0	0	0	0	489	19	263	47	13	0
Crmoi	0	0	0	0	0	0	0	0	0	0	0	0
Crmos	0	0	0	0	0	0	0	0	0	0	0	0
Crvix	0	0	0	0	0	0	0	0	0	0	0	0
Cramb	0	0	4	0	0	0	0	0	0	0	0	0
Cyaff	0	7	0	0	7	0	42	0	0	0	6	9
Cybif	123	0	0	0	0	0	0	0	0	0	0	0
Cypar	0	0	26	9	0	13	0	0	0	0	0	0
Cysum	0	0	0	0	0	0	0	0	0	0	0	0
Cytum	5	0	0	0	0	0	0	0	0	0	0	4
Cytur	0	0	0	0	0	0	0	317	5	2	0	0
Cyged	0	0	0	0	0	0	0	0	0	0	0	0
Cysub	0	0	0	0	0	0	0	0	0	25	0	0
Cysp1	0	0	0	0	0	0	0	0	0	0	0	0

Table 35 (continued)

	site1-Apr	site2-Apr	site3-Apr	site4-Apr	site5-Apr	site6-Apr	site7-Apr	site8-Apr	site9-Apr	site10-Apr	site11-Apr	site12-Apr
Cysp2	0	0	0	0	0	0	0	0	0	0	0	0
Dicon	0	0	0	0	0	0	0	0	0	0	13	0
Dedel	535	0	0	0	0	0	0	0	0	0	0	0
Desp1	8	0	0	0	0	0	0	0	0	0	0	0
Diobl	23	7	141	0	0	26	11	0	0	2	0	0
Diocu	14	0	0	0	0	0	0	0	0	0	0	0
Dipse	0	0	0	0	0	0	0	0	0	0	0	0
Enelg	0	0	0	0	0	0	0	0	0	0	0	0
Engae	0	0	0	4	0	0	0	0	0	0	0	0
Enmal	759	0	0	0	0	0	0	0	0	0	0	0
Enmes	0	0	0	0	0	0	0	0	0	0	0	0
Enmin	0	0	0	0	0	0	0	0	0	0	0	0
Enpro	18	0	0	0	0	0	0	0	0	0	0	0
Ensp1	0	0	0	0	0	0	0	0	0	0	0	0
Enlee	187	0	4	0	0	0	0	0	0	0	0	0
Enmic	137	0	22	39	13	0	0	0	0	0	0	0
Eomin	0	0	0	0	0	0	0	0	0	0	0	22
Epcis	0	0	11	0	0	0	0	0	0	0	0	0
Eubil	0	0	4	0	0	0	0	0	0	0	0	0
Eucur	0	0	0	0	0	0	0	0	0	0	0	0
Eumin	0	0	0	0	0	0	0	0	5	2	0	0
Fapyg	0	0	0	0	0	0	0	0	0	0	0	0
Frcap	0	0	0	0	0	0	0	0	0	0	0	0
Frrum	0	0	0	0	0	0	0	0	0	0	0	0
Frvau	0	0	0	0	0	0	0	0	0	0	0	0
Frwei	0	0	0	0	0	0	0	0	0	0	0	0
Haven	0	0	0	0	0	0	0	0	0	0	0	0
Hamon	0	0	0	0	0	46	0	5	0	0	0	0
Habul	14	0	0	0	0	0	0	0	0	0	0	0
Hipse	0	0	0	0	0	0	0	5	14	0	57	53
Hiavi	0	0	0	0	0	0	0	0	0	0	0	0
Gecum	0	0	0	0	0	0	0	0	0	0	0	0
Gedec	0	7	0	4	0	0	21	0	0	0	38	4
Gepun	0	0	0	0	0	0	0	0	0	2	19	9
Goaff	0	0	0	0	0	0	0	0	0	0	0	0
Goaur	5	0	7	30	0	39	74	0	0	5	0	0
Goboh	0	0	0	0	0	0	0	0	0	0	0	0
Gogra	14	0	0	17	7	0	0	0	0	0	0	0
Gojav	0	0	0	0	0	0	0	0	0	0	0	0
Golan	0	0	0	0	0	7	0	0	0	0	0	0
Gomic	0	0	0	0	0	0	0	0	43	0	0	9
Gomin	0	0	0	0	0	0	11	0	0	0	0	0
Gopar	0	0	0	0	3	7	11	52	38	5	0	0
Golag	0	0	0	0	0	0	0	5	0	0	0	4

Table 35 (continued)

	site1-Apr	site2-Apr	site3-Apr	site4-Apr	site5-Apr	site6-Apr	site7-Apr	site8-Apr	site9-Apr	site10-Apr	site11-Apr	site12-Apr
Gopro	0	0	0	0	0	0	0	0	0	0	0	0
Gopse	0	0	0	0	0	0	0	0	0	0	0	0
Gopum	0	7	100	22	0	7	0	76	0	0	0	0
Gopal	18	0	0	0	0	0	0	0	0	0	0	0
Gotru	0	0	0	0	0	0	0	0	0	0	0	9
Gyobs	0	0	0	0	0	0	0	0	0	0	0	0
Gysca	0	0	0	0	0	7	0	0	0	0	0	0
Gyspe	0	0	15	0	0	7	11	0	5	2	0	9
Kosp1	0	0	0	0	0	78	0	0	0	0	0	9
Lumit	0	0	7	0	0	0	0	0	0	0	0	0
Lulan	0	0	0	0	0	0	0	0	0	0	0	0
Lusax	0	0	0	0	0	0	0	0	0	0	0	0
Lusim	5	0	4	0	0	0	0	0	0	0	0	0
Luter	0	0	0	0	7	0	0	0	0	0	0	0
Lupse	0	0	0	0	0	0	0	0	5	0	0	4
Lusp1	0	0	0	0	0	0	0	0	0	0	0	22
Myagr	0	0	0	0	0	0	0	0	0	0	0	0
Naamp	0	0	0	0	0	65	0	0	0	0	0	0
Naant	0	0	0	0	0	0	21	0	0	2	0	0
Nacap	91	0	0	0	0	0	32	0	0	0	0	0
Nacat	0	0	0	0	0	0	0	0	0	0	0	0
Nacat	0	0	0	0	0	0	0	0	0	0	0	0
Nacin	0	0	0	0	0	0	0	0	0	0	0	0
Nacry	0	0	0	22	0	0	0	0	0	0	0	9
Naeri	0	0	0	0	0	0	0	0	0	0	0	0
Naesc	0	0	0	0	0	0	0	0	0	0	0	0
Nager	0	0	0	0	0	0	0	0	38	4	6	18
Nahei	5	0	41	9	0	0	0	0	0	0	0	4
Nahin	59	0	0	0	0	0	0	0	0	0	0	0
Najac	0	0	0	0	0	0	0	0	0	0	0	0
Narad	0	0	0	0	0	0	0	0	0	0	0	0
Narei	0	0	19	108	0	0	64	0	0	0	0	0
Naros	0	0	0	0	0	0	0	0	0	0	0	0
Nasim	0	20	78	9	0	0	21	0	0	11	0	0
Nasup	0	0	0	0	13	0	0	0	10	4	6	18
Namer	37	0	0	0	40	13	0	0	0	0	0	0
Navan	0	0	0	0	0	0	0	0	0	2	0	0
Navia	0	13	0	0	7	0	0	0	0	0	0	0
Navir	0	0	0	9	0	0	0	0	0	0	0	0
Naaqu	0	0	0	0	0	0	0	0	0	0	0	0
Nabel	0	7	0	4	0	0	0	0	0	0	0	0
Nalei	0	0	0	0	0	0	0	0	0	0	0	0
Napar	5	0	0	35	0	13	74	0	0	11	0	0
Navek	0	0	22	22	0	0	0	14	0	0	13	0

Table 35 (continued)

	site1-Apr	site2-Apr	site3-Apr	site4-Apr	site5-Apr	site6-Apr	site7-Apr	site8-Apr	site9-Apr	site10-Apr	site11-Apr	site12-Apr
Nasp1	0	0	0	0	0	0	0	0	0	0	0	0
Nasp2	0	0	0	0	0	0	0	0	0	0	0	0
Nanan	0	0	0	0	0	0	0	0	0	0	0	0
Neaff	0	0	0	0	0	0	0	0	0	0	0	0
Nesev	0	0	7	0	0	0	0	0	0	0	0	0
Nebin	0	0	0	0	0	0	0	0	0	0	0	0
Nedub	0	7	0	0	0	0	0	0	0	0	0	0
Negra	0	0	0	0	0	0	0	0	0	0	0	0
Niamp	0	0	0	0	0	0	0	0	0	0	0	0
Niang	0	0	0	0	0	0	0	0	0	0	0	0
Nicla	0	0	0	0	0	0	0	5	0	0	0	9
Nicom	0	7	0	0	0	0	0	0	0	0	0	0
Nibal	0	0	0	0	0	0	0	0	0	0	6	0
Nides	0	0	0	0	0	7	0	0	0	0	0	0
Nidis	0	0	37	4	0	0	0	0	0	2	6	4
Nicon	14	0	4	0	0	0	0	0	0	0	0	0
Nifre	0	0	0	0	0	7	0	0	0	0	0	0
Nifru	0	0	0	0	0	7	11	0	10	7	25	49
Nigra	0	0	0	0	3	91	0	0	10	13	38	0
Nihan	0	0	0	0	0	0	0	0	0	0	0	0
Nihoe	0	0	0	0	0	0	0	0	0	0	0	4
Niint	0	0	0	0	0	0	0	0	0	0	6	0
Nimin	0	0	4	0	0	0	0	0	0	0	0	0
Nilor	0	7	0	0	0	7	0	0	0	0	0	0
Nipal	0	26	41	4	151	13	0	180	34	16	32	71
Nideb	0	7	0	0	0	0	0	0	0	0	0	0
Nipar	0	0	0	0	0	0	0	0	0	0	0	0
Niper	0	0	0	0	0	0	0	0	5	4	6	36
Nipum	0	0	0	0	0	0	0	0	0	0	0	0
Nirec	0	0	56	17	10	13	11	0	0	0	32	31
Nirev	0	0	4	0	0	0	0	0	0	0	0	0
Nisal	0	0	0	0	0	0	0	0	0	2	0	0
Nisca	0	0	4	0	0	0	0	0	0	0	0	0
Nisin	0	0	0	9	0	0	0	0	0	0	0	0
Nisol	9	0	0	0	0	0	0	0	0	0	0	0
Nivut	0	33	0	0	0	150	11	0	0	2	38	0
Haamp	0	0	0	0	0	0	0	0	0	0	0	0
Trsal	0	0	4	0	0	0	0	0	0	2	6	0
Piaci	0	0	0	0	0	7	0	0	5	0	0	0
Pibic	0	0	0	0	0	0	0	0	0	0	0	0
Pioom	0	0	0	0	0	0	0	0	0	0	0	0
Pipse	18	0	0	0	0	0	0	0	0	0	0	0
Pisub	0	0	0	0	0	0	0	0	0	0	0	0
Piint	0	0	11	0	0	0	0	0	0	0	0	0

Table 35 (continued)

	site1-Apr	site2-Apr	site3-Apr	site4-Apr	site5-Apr	site6-Apr	site7-Apr	site8-Apr	site9-Apr	site10-Apr	site11-Apr	site12-Apr
Plcap	0	0	0	0	3	0	0	0	0	0	0	4
Plwit	0	0	0	0	0	0	0	0	0	0	19	0
Plele	0	0	0	0	0	0	0	0	0	0	0	0
Plpro	0	0	0	0	0	0	0	0	0	2	0	0
Plfre	0	0	0	0	10	0	32	19	53	22	127	9
Plros	0	7	0	0	0	0	0	0	5	2	0	0
Plsp1	0	0	0	0	0	0	0	0	0	0	0	0
Plneg	0	0	0	0	0	0	0	0	0	4	6	0
Reuni	0	0	0	0	0	0	11	0	0	0	0	0
Rhcon	0	0	0	0	0	0	0	0	0	0	0	0
Rhgib	0	0	4	0	0	0	0	0	0	0	0	0
Rhmus	0	53	7	0	0	0	0	0	0	0	6	0
Stanc	0	0	0	0	0	0	0	0	0	0	0	0
Stkri	5	0	0	0	0	0	0	0	0	0	0	0
Stsmi	0	0	0	0	0	0	0	0	0	0	0	0
Stsp1	0	0	0	0	0	0	0	0	0	0	0	0
Sestr	0	0	7	4	10	20	11	0	19	9	64	9
Selba	0	0	0	9	0	0	0	0	0	0	0	0
Selbl	0	20	0	0	0	0	0	0	0	0	0	0
Secap	0	0	0	0	0	0	0	0	0	0	0	0
Selse	0	0	0	0	0	0	0	0	0	0	0	0
Sella	14	0	0	13	0	0	0	0	0	0	13	0
Selpa	0	0	0	0	0	0	0	0	0	0	0	0
Seobe	0	0	0	0	0	0	0	0	0	4	0	9
Selst	0	0	0	0	0	0	0	0	0	0	0	0
Selsu	0	0	22	4	0	0	0	0	0	0	0	0
Sesp1	0	0	0	0	0	0	0	0	0	0	0	0
Sesp2	0	0	0	0	0	0	0	0	0	0	0	0
Suang	0	0	0	0	0	0	0	0	0	0	0	0
Sufon	0	0	0	0	0	0	0	0	0	0	0	0
Sulin	0	0	0	0	0	0	0	0	0	0	0	0
Suspl	0	0	0	4	0	0	0	0	0	0	0	0
Suost	0	0	0	0	0	7	0	0	0	0	0	0
Suten	0	0	0	0	0	0	0	0	0	0	0	0
Suner	0	0	0	0	0	0	0	0	0	0	0	0
Susp1	0	0	0	0	0	0	0	0	0	0	0	0
Susp2	0	0	0	0	0	0	0	0	0	0	0	0
Susp3	0	0	0	0	0	0	0	0	0	0	0	0
Susp4	0	0	0	0	0	0	0	0	0	0	0	0
Ularc	0	0	0	0	0	0	0	0	5	0	0	0
Ullan	0	0	0	9	0	0	21	0	0	0	0	4
Ulram	0	0	0	0	0	0	0	0	0	0	0	0
Ulull	27	0	4	26	0	0	0	14	24	15	6	0

Table 36 The results of diatom cell counted of the Wang River in May 2012

	site1-May	site2-May	site3-May	site4-May	site5-May	site6-May	site7-May	site8-May	site9-May	site10-May	site11-May	site12-May
Augra	0	0	0	0	0	1177	380	12	69	0	0	15
Cymen	0	0	0	0	0	6	0	0	33	0	13	0
Cysha	0	0	0	0	0	6	0	0	0	0	0	0
Diste	0	0	9	11	0	142	28	0	7	0	0	0
Acinf	0	0	0	0	0	0	0	0	0	0	0	0
Acobl	0	0	0	0	0	0	0	0	0	0	0	1
Acpus	0	0	0	0	0	0	0	0	0	0	0	0
Acexm	0	11	0	0	0	0	0	0	0	0	0	0
Acexi	0	0	611	428	0	0	0	0	17	0	0	0
Acjak	0	0	0	0	0	0	0	0	0	0	0	0
Aclat	57	0	0	0	0	0	6	0	0	0	0	0
Acmim	413	69	9	47	625	19	62	0	60	102	140	2
Acsta	0	0	13	0	0	0	0	0	0	0	0	0
Acsub	0	0	0	0	0	0	0	0	0	0	0	0
Acsp1	0	0	0	0	0	0	0	0	0	0	0	0
Acsp2	0	0	0	0	0	0	0	0	0	0	0	0
Acsp3	0	0	0	0	0	0	0	0	0	0	0	0
Adbry	0	0	9	0	0	0	0	0	0	0	0	0
Amlir	0	53	0	0	0	0	0	0	12	32	0	0
Ansp1	0	0	0	0	0	0	0	0	0	0	0	0
Bamic	0	0	0	0	0	0	0	0	0	0	0	0
Bapax	0	0	0	0	0	0	0	0	29	0	55	0
Brneo	0	5	9	0	0	0	0	0	0	0	0	0
Cabac	9	0	0	0	0	0	0	0	0	0	0	0
Caalp	0	0	0	0	0	0	0	0	0	0	0	0
Capei	0	0	0	0	0	0	0	0	0	0	0	0
Caven	0	0	0	0	0	0	0	0	0	0	0	0
Caten	0	5	0	0	0	0	0	0	0	0	0	0
Casp1	0	0	0	0	0	0	0	0	0	0	0	0
Casp2	0	11	0	0	0	0	0	0	0	0	0	0
Copla	4	5	0	0	12	0	22	1	45	51	0	0
Crmoi	0	0	0	0	0	0	0	0	0	0	0	0
Crmos	0	0	0	0	0	0	0	0	0	0	0	0
Crvix	0	0	0	0	0	0	0	0	0	0	0	0
Cramb	0	0	0	0	0	0	0	0	0	0	0	0
Cyaff	0	21	0	0	180	0	15	0	0	0	64	5
Cybif	79	0	0	0	0	0	0	0	0	0	0	0
Cypar	0	0	4	15	0	31	0	0	0	0	0	0
Cysum	22	0	0	0	0	0	0	0	0	0	0	0
Cytum	0	0	0	0	96	0	0	0	0	0	0	2
Cytur	0	0	0	0	0	0	0	63	0	102	0	0
Cyged	0	0	0	0	0	0	0	0	0	0	0	0
Cysub	31	0	0	0	0	0	0	0	0	6	0	0
Cysp1	0	0	0	0	12	0	0	0	8	0	0	0

Table 36 (continued)

	site1-May	site2-May	site3-May	site4-May	site5-May	site6-May	site7-May	site8-May	site9-May	site10-May	site11-May	site12-May
Cysp2	0	0	0	0	0	0	0	0	0	0	0	0
Dicon	0	0	0	0	0	0	0	0	0	0	0	0
Dedel	483	0	0	0	0	0	0	0	0	0	0	0
Desp1	0	0	0	0	0	0	0	0	0	0	0	0
Diobl	31	0	49	0	0	12	3	0	0	0	0	0
Diocu	0	0	0	0	0	0	0	0	0	0	0	0
Dipse	0	0	0	0	0	0	0	0	0	0	0	0
Enelg	0	0	0	0	0	0	0	6	0	0	0	0
Engae	0	0	0	0	0	0	0	0	0	0	0	0
Enmal	562	0	0	0	0	0	0	0	0	0	0	0
Enmes	0	0	0	0	0	0	0	0	0	0	0	23
Enmin	0	0	0	0	0	0	0	0	0	0	0	0
Enpro	13	0	0	0	0	0	0	0	0	0	0	0
Ensp1	0	0	0	0	0	0	0	0	0	0	0	0
Enlee	360	0	0	0	24	0	0	0	0	0	0	0
Enmic	255	0	0	54	0	0	0	0	0	0	0	0
Eomin	0	0	0	0	0	0	0	0	0	0	0	1
Epcis	0	0	0	0	0	0	0	0	0	0	0	0
Eubil	0	0	4	0	0	0	0	0	0	0	0	0
Eucur	0	0	0	0	0	0	0	0	0	0	0	0
Eumin	0	0	0	0	0	0	0	0	0	0	0	0
Fapyg	0	0	0	0	0	0	0	0	0	0	0	0
Frcap	0	0	0	0	0	0	6	0	0	0	0	0
Frrum	0	0	0	0	0	0	0	0	0	0	0	0
Frvau	0	0	0	0	0	0	0	0	0	0	0	0
Frwei	0	0	0	0	0	0	0	0	0	0	0	0
Haven	0	0	0	0	0	0	0	0	0	0	0	0
Hamon	0	11	0	0	0	12	0	0	0	0	0	0
Habul	4	0	0	0	0	0	0	0	0	0	0	0
Hipse	0	21	0	0	0	0	0	0	0	0	0	7
Hiavi	0	0	0	0	0	0	0	0	0	0	0	0
Gecum	0	16	0	0	0	0	0	0	0	0	0	0
Gedec	0	0	0	0	0	0	3	0	120	0	0	0
Gepun	0	5	0	0	0	0	0	0	0	0	0	0
Goaff	0	0	9	0	0	0	0	0	0	0	0	0
Goaur	0	0	36	33	24	19	12	0	0	0	0	0
Goboh	0	0	0	0	0	0	0	0	0	0	0	0
Gogra	18	0	13	44	0	0	0	0	0	0	0	0
Gojav	0	0	0	0	60	0	3	0	0	0	0	0
Golan	0	0	0	0	0	0	0	0	32	0	0	0
Gomic	0	0	0	0	0	0	0	0	0	0	10	30
Gomin	0	0	0	0	0	0	0	0	0	0	0	0
Gopar	0	0	0	0	120	0	9	8	0	19	0	0
Golag	0	5	0	0	0	0	0	0	0	0	0	8

Table 36 (continued)

	site1-May	site2-May	site3-May	site4-May	site5-May	site6-May	site7-May	site8-May	site9-May	site10-May	site11-May	site12-May
Gopro	0	0	0	0	0	0	0	0	0	0	0	0
Gopse	0	0	0	0	0	0	0	0	0	0	0	0
Gopum	22	21	45	141	0	0	0	30	0	0	0	0
Gopal	13	0	0	0	0	0	0	0	0	0	0	0
Gotru	0	0	0	0	0	0	0	0	0	0	0	0
Gyobs	0	0	0	0	0	0	0	0	0	0	0	0
Gysca	0	0	0	0	0	0	0	0	0	0	0	30
Gyspe	0	11	4	0	0	6	0	12	23	0	30	0
Kosp1	0	0	0	0	0	0	0	0	0	0	0	0
Lumit	0	0	9	0	0	0	0	0	0	0	0	0
Lulan	0	0	0	0	0	0	0	0	0	0	0	0
Lusax	0	0	0	0	0	0	0	0	0	0	0	0
Lusim	4	0	0	0	0	0	0	0	0	0	0	0
Luter	0	0	0	0	0	0	0	0	0	0	0	0
Lupse	0	0	0	0	0	0	0	0	0	0	0	15
Lusp1	0	0	0	0	0	0	0	0	0	0	0	15
Myagr	0	0	0	0	0	0	0	0	0	0	0	0
Naamp	0	0	0	0	0	0	0	0	23	0	0	0
Naant	0	0	0	0	0	0	2	0	0	6	0	0
Nacap	193	0	0	0	0	0	3	0	0	0	0	0
Nacat	0	0	0	0	0	0	0	0	0	0	0	0
Nacat	0	0	0	0	0	0	0	0	0	0	0	0
Nacin	0	0	0	0	0	0	0	0	0	0	0	0
Nacry	0	26	0	0	0	0	0	0	0	0	0	0
Naeri	0	0	0	0	0	0	0	0	0	0	0	0
Naesc	0	0	0	0	0	0	0	0	0	0	0	0
Nager	0	0	0	0	0	0	0	0	69	13	0	0
Nahei	4	0	94	18	0	0	0	0	0	0	0	0
Nahin	132	0	0	0	0	0	0	0	0	0	0	0
Najac	0	0	0	0	0	0	0	0	0	0	0	0
Narad	0	0	0	0	0	0	0	0	0	0	0	0
Narei	0	0	22	22	0	0	0	0	0	0	0	0
Naros	0	0	0	0	0	0	0	0	0	0	0	0
Nasim	0	64	81	7	72	0	3	0	0	26	0	30
Nasup	0	0	0	0	349	0	0	0	0	32	15	15
Namer	35	0	0	0	60	0	15	0	0	0	0	0
Navan	0	0	0	0	0	0	0	0	0	0	30	0
Navia	0	0	0	0	0	0	0	0	0	0	0	15
Navir	0	0	4	0	0	0	6	0	0	0	0	0
Naaqu	0	0	0	0	0	0	0	0	0	0	0	0
Nabel	0	106	0	0	0	0	0	0	0	0	0	0
Nalei	0	0	4	0	0	0	0	0	0	0	0	0
Napar	0	0	0	0	0	12	15	0	0	26	0	0
Navek	0	32	36	25	0	0	6	24	23	0	0	0

Table 36 (continued)

	site1-May	site2-May	site3-May	site4-May	site5-May	site6-May	site7-May	site8-May	site9-May	site10-May	site11-May	site12-May
Nasp1	0	0	0	0	0	0	0	0	0	0	0	0
Nasp2	0	0	0	0	0	0	0	0	0	0	0	0
Nanan	0	0	0	0	0	0	0	0	0	0	0	0
Neaff	0	0	0	0	0	0	0	0	0	0	0	0
Nesev	0	0	0	0	0	0	0	0	0	0	0	0
Nebin	0	0	0	0	0	0	0	0	0	0	0	0
Nedub	0	0	0	0	0	0	0	0	0	0	0	0
Negra	0	0	0	0	0	0	0	0	0	0	0	0
Niamp	0	0	9	0	0	0	0	0	0	0	0	0
Niang	0	0	0	0	0	0	0	0	0	0	0	0
Nicla	0	0	0	0	0	0	0	1	0	0	0	30
Nicom	0	0	0	0	0	0	0	0	0	0	0	0
Nibal	0	0	0	0	0	0	0	0	0	0	0	0
Nides	0	0	0	0	0	0	0	0	0	0	0	0
Nidis	0	5	13	0	12	0	0	0	0	6	20	0
Nicon	9	0	0	0	0	0	0	0	0	0	0	0
Nifre	0	0	0	0	0	0	0	0	0	0	0	0
Nifru	0	0	4	0	0	6	0	0	0	26	85	61
Nigra	0	32	0	0	0	0	0	0	0	57	34	13
Nihan	0	0	0	0	0	0	0	0	0	0	0	0
Nihoe	0	11	0	0	0	0	0	0	0	0	0	0
Niint	0	5	0	4	0	0	0	6	0	0	0	0
Nimin	0	0	0	0	0	0	0	0	0	0	0	0
Nilor	0	5	0	0	0	0	0	0	0	0	0	0
Nipal	0	111	13	0	204	0	0	72	60	32	0	46
Nideb	0	11	0	0	0	0	0	0	0	0	0	0
Nipar	0	0	0	0	0	0	0	0	0	0	0	0
Niper	0	0	0	0	0	0	0	0	0	6	70	0
Nipum	0	0	13	0	0	0	0	0	0	0	0	0
Nirec	0	0	99	4	0	0	22	0	0	0	0	23
Nirev	0	0	0	0	0	0	0	0	0	0	0	4
Nisal	0	0	22	0	0	0	0	0	19	0	0	0
Nisca	0	0	0	0	0	0	0	0	0	0	0	0
Nisin	0	0	0	4	0	0	0	0	0	0	0	0
Nisol	13	0	0	0	0	0	0	0	0	0	0	0
Nivut	0	0	0	0	0	6	22	0	0	6	14	0
Haamp	0	0	0	0	0	0	0	0	0	0	0	5
Trsal	0	5	0	0	0	0	0	0	0	0	3	0
Piaci	0	0	0	0	0	0	0	0	0	0	0	0
Pibic	0	0	0	0	0	0	0	0	0	0	0	0
Pioom	0	0	0	0	0	0	0	0	0	0	0	0
Pipse	4	0	0	0	0	0	0	0	0	0	0	0
Pisub	0	0	0	0	0	0	0	0	0	0	0	0
Piint	0	0	4	0	0	0	0	12	0	0	0	0

Table 36 (continued)

	site1-May	site2-May	site3-May	site4-May	site5-May	site6-May	site7-May	site8-May	site9-May	site10-May	site11-May	site12-May
Plcap	0	0	0	0	0	0	0	0	0	0	0	1
Plwit	0	0	0	0	0	0	0	0	0	0	0	0
Plele	0	0	4	0	0	0	0	0	0	0	0	0
Plpro	0	0	0	0	0	0	0	0	31	0	0	0
Plfre	0	37	0	0	72	0	0	53	0	70	0	0
Plros	0	24	0	0	0	0	0	0	0	6	0	0
Plsp1	0	0	0	0	0	0	0	0	0	0	0	0
Plneg	0	0	0	0	0	0	0	0	11	6	0	0
Reuni	0	0	0	0	0	0	9	0	0	0	0	0
Rhcon	0	0	0	0	0	0	0	0	0	0	0	0
Rhgib	0	0	0	0	0	0	0	0	0	0	0	0
Rhmus	0	0	4	4	168	12	0	0	0	0	0	0
Stanc	0	0	0	0	0	0	0	0	0	0	2	0
Stkri	0	0	0	0	0	0	0	0	0	0	0	0
Stsmi	0	0	0	0	0	0	0	0	0	0	0	0
Stsp1	0	0	0	0	0	0	0	0	0	0	0	0
Sestr	0	120	18	0	108	6	3	0	0	77	40	46
Selba	0	0	0	0	0	0	0	0	0	0	0	0
Selbl	0	11	13	0	0	0	0	0	0	0	0	0
Secap	0	0	0	0	0	0	0	0	0	0	0	0
Selse	0	0	0	0	0	0	0	0	0	0	0	0
Sella	0	5	0	0	0	0	0	8	0	0	0	0
Selpa	0	0	0	0	0	0	0	0	0	0	0	0
Seobe	0	0	0	0	0	0	0	0	0	6	0	0
Selst	0	0	0	0	0	0	0	0	0	0	0	0
Selsu	0	0	31	0	0	0	0	0	0	0	0	0
Sesp1	0	0	0	0	0	0	0	0	0	0	0	0
Sesp2	0	0	0	0	0	0	0	0	0	0	0	0
Suang	0	5	0	0	0	0	0	0	0	0	0	0
Sufon	0	0	0	0	0	0	0	0	0	0	0	0
Sulin	0	0	0	0	0	0	0	0	0	0	0	0
Suspl	0	5	0	0	0	0	0	0	0	0	0	0
Suost	0	5	0	0	0	0	0	12	0	0	0	0
Suten	0	5	0	0	0	0	0	0	0	0	0	0
Suner	0	0	0	0	0	0	0	14	0	0	0	0
Susp1	0	0	0	0	0	0	0	0	0	0	0	0
Susp2	0	0	0	0	0	0	0	0	0	0	0	0
Susp3	0	0	0	0	0	0	0	0	0	0	0	0
Susp4	0	0	0	0	0	0	0	0	0	0	0	0
Ularc	0	0	0	15	48	0	0	0	0	0	0	0
Ullan	0	0	0	127	132	0	22	0	0	0	0	0
Ulram	0	0	0	0	0	0	0	0	0	0	0	0
Ulull	31	0	0	29	0	6	31	1	140	45	30	0

Table 37 The results of diatom cell counted of the Wang River in June 2012

	site1-Jun	site2-Jun	site3-Jun	site4-Jun	site5-Jun	site6-Jun	site7-Jun	site8-Jun	site9-Jun	site10-Jun	site11-Jun	site12-Jun
Augra	0	0	0	0	0	76	8	5	0	0	0	0
Cymen	0	0	0	0	0	0	0	0	0	0	7	0
Cysha	0	0	0	0	0	8	0	0	0	0	0	0
Diste	0	0	6	31	0	121	0	0	4	0	0	0
Acinf	0	0	0	0	0	0	0	0	0	0	0	0
Acobl	0	0	0	0	0	0	0	0	0	0	0	0
Acpus	0	0	0	0	0	0	0	0	0	0	0	0
Acexm	0	6	19	0	0	0	0	0	0	0	0	0
Acexi	0	0	182	89	0	0	94	0	21	0	0	0
Acjak	0	0	0	0	0	0	0	0	0	0	0	0
Aclat	5	0	0	0	0	8	0	0	0	0	0	0
Acmim	67	51	0	0	203	174	94	0	14	18	0	35
Acsta	0	0	0	0	0	0	0	0	0	0	0	0
Acsub	0	0	0	0	0	0	0	0	0	0	0	0
Acsp1	0	0	0	0	0	0	0	0	0	0	0	0
Acsp2	0	0	0	0	0	0	0	0	0	0	0	0
Acsp3	0	0	0	0	0	0	0	0	0	0	0	0
Adbry	0	0	6	9	0	0	0	0	0	0	0	0
Amlir	0	23	0	0	0	0	0	9	11	7	0	0
Ansp1	0	0	0	0	0	0	0	0	0	0	0	0
Bamic	0	0	0	0	0	0	0	0	0	0	0	0
Bapax	5	0	25	0	0	0	0	0	7	0	0	0
Brneo	0	6	0	47	0	0	0	0	0	0	0	0
Cabac	5	0	0	0	0	0	0	0	0	0	0	0
Caalp	0	0	0	0	0	0	0	0	0	0	0	0
Capei	0	0	0	0	0	0	0	0	0	0	0	0
Caven	0	0	0	0	0	8	0	0	0	0	0	0
Caten	0	6	0	0	0	0	0	0	0	0	0	0
Casp1	0	0	0	0	0	0	0	0	0	0	0	0
Casp2	0	0	0	0	0	0	0	0	0	0	0	0
Copla	0	0	0	0	9	0	6	9	0	28	0	40
Crmoi	0	0	0	0	0	0	0	0	0	0	0	0
Crmos	0	0	0	0	0	0	0	0	0	0	0	0
Crvix	0	0	0	0	0	0	0	0	0	0	0	0
Cramb	0	0	0	0	0	0	0	0	0	0	0	0
Cyaff	0	11	245	0	163	0	75	0	0	0	614	174
Cybif	249	0	0	0	0	0	0	0	0	0	0	0
Cypar	0	0	0	0	0	182	12	0	0	0	0	0
Cysum	10	0	0	0	0	0	0	0	0	0	0	0
Cytum	0	0	0	0	11	8	0	0	0	0	0	0
Cytur	0	0	0	0	0	0	0	19	0	199	0	0
Cyged	0	0	0	0	0	0	0	0	0	0	0	0
Cysub	5	0	0	0	0	0	0	0	0	0	0	0
Cysp1	0	0	0	0	3	0	0	0	0	0	0	0

Table 37 (continued)

	site1-Jun	site2-Jun	site3-Jun	site4-Jun	site5-Jun	site6-Jun	site7-Jun	site8-Jun	site9-Jun	site10-Jun	site11-Jun	site12-Jun
Cysp2	0	0	6	0	0	0	0	0	0	0	0	0
Dicon	0	0	0	0	0	0	0	0	0	0	0	0
Dedel	187	0	0	0	0	0	0	0	0	0	0	0
Desp1	0	0	0	0	0	0	0	0	0	0	0	0
Diobl	14	0	6	9	0	8	0	0	0	0	0	0
Diocu	0	0	0	0	0	0	0	0	0	0	0	0
Dipse	0	0	0	0	0	0	0	0	0	0	0	0
Enelg	0	0	0	0	0	0	0	0	0	0	0	0
Engae	0	0	0	0	0	8	0	0	0	0	0	0
Enmal	450	0	0	0	0	0	0	0	0	0	0	0
Enmes	0	0	0	0	0	0	0	0	0	0	0	0
Enmin	0	0	0	0	0	0	0	0	0	0	0	0
Enpro	0	0	0	0	0	0	0	0	0	0	0	0
Ensp1	0	0	0	0	0	0	0	0	0	0	0	0
Enlee	201	0	0	0	4	0	0	0	0	0	0	0
Enmic	254	0	0	35	0	0	0	0	0	0	0	0
Eomin	0	0	0	0	0	0	0	0	0	0	0	17
Epcis	0	0	6	0	0	0	0	0	0	0	0	0
Eubil	0	0	13	0	0	0	0	0	0	0	0	0
Eucur	0	0	0	0	0	0	0	0	0	0	0	0
Eumin	0	0	0	0	0	0	0	0	0	0	0	0
Fapyg	0	0	0	0	0	0	0	0	0	0	0	0
Frcap	0	0	0	0	0	0	12	0	0	0	0	0
Frrum	0	0	0	0	0	0	0	0	0	0	0	0
Frvau	0	0	0	0	0	0	0	0	0	0	0	0
Frwei	0	0	0	0	0	0	0	0	0	0	0	0
Haven	0	0	0	0	0	0	0	0	0	0	0	0
Hamon	0	0	0	0	0	8	0	0	7	0	0	23
Habul	5	0	0	0	0	0	0	0	0	0	0	0
Hipse	0	23	0	0	0	0	0	0	145	0	30	72
Hiavi	0	0	0	0	0	0	0	0	0	0	0	0
Gecum	0	0	0	0	0	0	0	0	0	0	0	0
Gedec	0	0	0	0	0	15	0	0	0	0	0	0
Gepun	0	0	0	0	0	0	0	0	0	0	0	0
Goaff	0	0	0	0	0	0	0	0	0	0	0	0
Goaur	10	0	0	87	7	45	6	0	0	0	0	0
Goboh	0	0	0	0	0	0	0	0	0	0	0	0
Gogra	0	0	0	75	0	0	0	0	0	0	0	0
Gojav	0	0	0	0	9	15	0	0	0	0	0	0
Golan	0	0	0	0	0	0	0	0	0	0	0	0
Gomic	0	0	0	0	0	0	0	0	0	0	0	0
Gomin	0	0	0	0	0	0	0	0	0	0	0	0
Gopar	0	0	0	0	18	0	12	14	0	30	15	0
Golag	0	17	0	0	0	0	0	0	0	0	0	0

Table 37 (continued)

	site1-Jun	site2-Jun	site3-Jun	site4-Jun	site5-Jun	site6-Jun	site7-Jun	site8-Jun	site9-Jun	site10-Jun	site11-Jun	site12-Jun
Gopro	0	0	0	0	0	0	0	0	0	0	0	0
Gopse	0	0	0	0	0	0	0	0	0	0	0	0
Gopum	5	23	0	47	0	38	0	5	0	0	0	0
Gopal	5	0	0	0	0	0	0	0	0	0	0	0
Gotru	0	0	0	0	0	0	0	0	0	0	0	0
Gyobs	0	0	0	0	0	0	0	0	0	0	0	0
Gysca	0	0	0	0	0	8	0	0	0	0	0	0
Gyspe	0	0	6	8	0	0	0	0	0	0	0	0
Kosp1	0	0	0	0	0	98	0	0	0	0	0	0
Lumit	0	0	0	0	0	0	0	0	0	0	0	0
Lulan	0	0	0	0	0	0	0	0	7	0	0	0
Lusax	0	0	0	0	0	30	0	0	0	0	0	0
Lusim	0	0	0	0	0	0	0	0	0	0	0	0
Luter	0	0	0	0	27	0	0	0	0	0	0	0
Lupse	0	0	0	0	0	0	0	0	0	0	0	0
Lusp1	0	0	0	0	0	8	0	0	0	0	0	0
Myagr	0	0	0	0	0	0	0	0	0	0	0	0
Naamp	0	0	13	0	0	0	0	5	0	0	0	0
Naant	0	0	0	0	0	0	0	0	39	0	0	0
Nacap	168	0	0	0	0	0	0	0	0	0	0	0
Nacat	0	0	0	0	0	0	0	0	0	0	0	0
Nacat	0	0	0	0	0	0	0	0	0	0	0	0
Nacin	0	0	0	0	0	0	0	0	0	0	0	0
Nacry	0	11	0	0	0	0	0	0	0	0	0	0
Naeri	0	0	0	0	0	0	0	0	0	0	0	0
Naesc	0	17	0	0	0	0	0	0	0	0	0	0
Nager	0	0	0	0	0	0	0	0	0	12	120	35
Nahei	67	0	0	8	0	0	0	0	0	0	0	0
Nahin	0	0	0	0	0	0	0	0	0	0	0	0
Najac	0	0	0	0	0	0	0	0	7	0	0	0
Narad	0	0	0	0	0	0	0	0	0	0	0	0
Narei	0	0	19	16	0	0	0	0	0	0	0	0
Naros	0	0	0	0	0	0	0	0	0	0	0	0
Nasim	0	0	13	0	0	0	0	0	0	62	37	0
Nasup	0	0	0	0	18	45	0	5	4	112	22	17
Namer	5	0	0	0	18	15	6	0	0	0	0	0
Navan	0	0	0	0	0	0	0	0	0	37	0	0
Navia	0	0	0	0	0	0	0	0	0	0	0	17
Navir	0	0	6	0	0	0	0	0	0	0	0	0
Naaqu	0	0	0	0	0	0	0	0	0	0	0	0
Nabel	0	63	0	8	0	0	0	0	0	0	0	0
Nalei	0	0	0	0	0	0	0	0	0	0	0	0
Napar	10	0	0	0	0	432	106	0	0	0	0	0
Navek	0	0	6	39	0	0	0	56	4	12	30	0

Table 37 (continued)

	site1-Jun	site2-Jun	site3-Jun	site4-Jun	site5-Jun	site6-Jun	site7-Jun	site8-Jun	site9-Jun	site10-Jun	site11-Jun	site12-Jun
Nasp1	0	0	0	0	0	0	0	0	0	0	0	0
Nasp2	0	0	0	0	0	0	0	0	0	0	0	0
Nanan	0	0	0	0	0	0	0	0	0	0	0	0
Neaff	0	0	0	0	0	0	0	0	0	0	0	0
Nesev	0	0	13	0	0	0	0	0	0	0	0	0
Nebin	0	0	0	0	0	0	0	0	0	0	0	0
Nedub	0	0	0	0	0	0	0	0	0	0	0	0
Negra	0	0	0	0	0	0	0	0	0	0	0	0
Niamp	0	0	0	0	0	0	0	0	0	0	0	0
Niang	0	0	0	0	0	0	0	0	0	0	0	0
Nicla	0	0	0	0	0	0	0	0	0	0	0	38
Nicom	0	0	0	0	0	0	0	0	0	0	0	0
Nibal	0	0	0	0	0	0	0	0	0	0	0	0
Nides	0	0	0	0	0	0	0	0	0	0	0	0
Nidis	0	0	0	0	14	0	0	0	0	0	0	0
Nicon	0	0	0	8	0	8	0	0	0	0	0	0
Nifre	0	0	0	0	0	0	0	0	0	0	0	0
Nifru	0	0	0	0	0	8	0	0	0	0	7	2
Nigra	0	0	0	0	0	23	0	9	11	62	0	42
Nihan	0	0	0	0	0	0	0	0	0	0	0	0
Nihoe	0	0	0	0	0	0	0	0	0	0	0	0
Niint	0	0	6	0	0	0	0	9	0	0	0	0
Nimin	0	0	0	0	18	0	0	0	0	0	0	0
Nilor	0	0	0	0	0	0	0	0	4	0	0	0
Nipal	0	0	0	0	27	30	0	480	78	311	292	174
Nideb	0	0	0	0	0	0	0	0	0	0	0	0
Nipar	0	0	0	0	0	0	0	0	0	0	0	0
Niper	0	0	0	0	0	0	0	5	0	0	15	0
Nipum	0	0	0	0	0	0	0	0	0	0	15	0
Nirec	0	0	31	24	0	23	0	0	0	0	15	104
Nirev	0	0	6	0	0	0	0	0	7	0	0	0
Nisal	0	0	0	0	0	0	0	0	0	0	0	0
Nisca	0	0	0	0	0	0	0	0	0	0	0	0
Nisin	0	0	0	0	0	0	0	0	0	0	0	0
Nisol	0	0	0	0	0	0	0	0	0	0	0	0
Nivut	0	0	0	0	0	38	0	0	0	0	15	0
Haamp	0	0	0	0	0	0	0	0	0	0	0	35
Trsal	0	0	0	0	0	0	0	0	0	0	0	35
Piaci	0	0	0	0	0	0	0	0	4	0	7	35
Pibic	0	0	0	0	0	0	0	0	0	0	0	0
Pioom	0	0	0	0	0	0	0	0	0	0	0	0
Pipse	0	0	0	0	0	0	0	0	0	0	0	0
Pisub	0	0	0	0	0	0	0	0	0	0	0	0
Piint	0	0	0	0	0	0	0	5	0	25	0	0

Table 37 (continued)

	site1-Jun	site2-Jun	site3-Jun	site4-Jun	site5-Jun	site6-Jun	site7-Jun	site8-Jun	site9-Jun	site10-Jun	site11-Jun	site12-Jun
Plcap	0	0	0	0	0	0	0	0	7	0	0	0
Plwit	0	0	0	0	0	0	0	0	0	0	0	0
Plele	0	0	6	0	0	0	0	0	0	0	0	0
Plpro	0	0	0	0	0	0	0	0	0	0	0	0
Plfre	0	0	6	37	0	0	0	47	67	37	30	80
Plros	0	0	0	0	0	0	0	0	0	0	7	0
Plsp1	0	0	0	0	0	0	0	0	0	0	0	0
Plneg	0	0	0	0	0	0	0	0	0	0	0	0
Reuni	0	0	0	0	0	0	0	0	0	0	0	0
Rhcon	0	0	0	0	0	0	0	0	0	0	0	0
Rhgib	0	0	0	0	0	0	0	0	0	0	0	0
Rhmus	0	0	31	0	0	0	0	0	0	0	0	0
Stanc	0	0	0	0	0	0	0	0	0	0	0	0
Stkri	0	0	0	0	0	0	0	0	0	0	0	0
Stsmi	0	0	0	0	0	0	0	0	0	0	0	0
Stsp1	0	0	0	0	0	0	0	0	0	0	7	0
Sestr	0	51	13	0	75	38	6	5	14	242	210	93
Selba	0	0	6	0	0	0	0	0	0	0	0	0
Selbl	0	0	13	0	0	0	0	0	0	0	0	0
Secap	0	0	0	0	0	0	0	0	0	0	0	0
Selse	0	0	0	0	0	0	0	0	0	0	0	0
Sella	14	0	0	14	0	0	0	9	11	12	15	0
Selpa	0	0	0	0	0	0	0	0	0	0	0	0
Seobe	0	0	0	0	0	0	0	0	0	0	0	0
Selst	0	0	0	0	0	0	0	0	0	0	0	0
Selsu	0	0	0	0	0	0	0	0	0	0	0	0
Sesp1	0	0	0	0	0	0	0	0	0	0	0	0
Sesp2	0	0	0	0	0	0	0	0	0	0	0	0
Suang	0	0	0	0	0	0	0	0	0	0	0	0
Sufon	0	0	0	0	0	0	0	0	0	25	0	0
Sulin	0	0	0	0	0	0	0	0	0	0	0	0
Suspl	0	0	0	0	0	0	0	0	0	0	0	0
Suost	0	6	0	0	0	0	0	5	0	0	0	0
Suten	0	6	0	0	0	0	0	0	0	0	0	0
Suner	0	0	0	0	0	0	0	0	0	0	0	0
Susp1	0	0	0	0	0	0	0	0	0	0	0	0
Susp2	0	0	0	0	0	0	0	0	0	0	0	0
Susp3	0	0	0	0	0	0	0	0	0	0	0	0
Susp4	0	0	0	0	0	0	0	0	0	0	0	0
Ularc	0	0	0	0	3	0	0	0	0	0	0	0
Ullan	0	0	0	4	18	8	0	0	0	0	0	107
Ulram	0	0	0	0	0	0	0	0	0	0	0	0
Ulull	62	0	0	0	0	0	81	9	0	50	7	0

Table 38 The results of diatom cell counted of the Wang River in July 2012

	site1-Jul	site2-Jul	site3-Jul	site4-Jul	site5-Jul	site6-Jul	site7-Jul	site8-Jul	site9-Jul	site10-Jul	site11-Jul	site12-Jul
Augra	0	0	18	12	0	35	0	23	0	0	9	5
Cymen	0	0	0	0	0	0	0	0	0	0	0	0
Cysha	0	0	0	0	0	0	0	0	0	0	0	0
Diste	0	0	12	0	0	35	0	28	0	0	0	0
Acinf	0	0	0	0	0	0	0	0	0	0	0	0
Acobl	0	0	0	0	0	0	0	0	0	0	0	0
Acpus	0	0	0	0	0	0	0	0	0	0	0	0
Acexm	0	0	12	0	0	35	0	0	0	0	0	0
Acexi	0	0	328	0	0	0	0	6	8	0	0	0
Acjak	0	0	0	0	0	0	0	0	0	0	0	0
Aclat	35	0	0	0	0	0	0	0	0	0	0	0
Acmim	97	16	89	6	85	294	0	0	8	0	0	5
Acsta	0	0	0	0	0	0	0	0	0	0	0	0
Acsub	0	0	0	0	0	0	0	0	0	0	0	0
Acsp1	0	0	0	0	0	0	0	0	0	0	0	0
Acsp2	0	0	0	0	0	0	0	0	0	0	0	0
Acsp3	0	0	0	0	0	0	0	0	0	0	0	0
Adbry	0	0	18	0	0	0	0	0	0	0	0	0
Amlir	0	0	18	0	7	0	0	0	0	0	5	0
Ansp1	0	0	0	0	0	0	0	0	0	0	0	0
Bamic	0	0	0	0	0	0	0	0	0	0	0	0
Bapax	0	0	0	0	0	0	0	0	0	0	0	0
Brneo	0	0	42	12	14	0	0	0	0	0	0	0
Cabac	0	0	0	0	0	0	0	0	0	0	0	0
Caalp	0	0	30	0	0	0	0	0	0	0	0	0
Capei	0	0	0	0	0	0	0	0	0	0	0	0
Caven	0	0	0	0	0	0	0	0	0	0	0	0
Caten	0	0	0	0	0	0	0	0	0	0	0	0
Casp1	0	0	0	0	0	0	0	0	0	0	0	0
Casp2	0	0	0	0	7	0	0	0	0	0	0	0
Copla	0	0	0	0	0	0	0	119	0	11	5	0
Crmoi	0	0	0	0	0	0	0	0	0	0	0	0
Crmos	0	0	0	0	0	0	0	0	0	0	0	0
Crvix	0	0	0	0	0	0	0	0	0	0	0	0
Cramb	0	0	0	0	0	0	0	0	0	0	0	0
Cyaff	0	32	66	0	70	0	0	0	0	0	98	0
Cybif	69	0	12	0	0	0	0	0	0	0	0	0
Cypar	0	0	18	18	0	47	0	0	0	0	0	0
Cysum	25	0	0	0	0	0	0	0	0	0	0	0
Cytum	0	0	0	0	0	0	0	0	0	0	0	28
Cytur	0	0	0	0	0	0	0	357	8	15	0	0
Cyged	0	0	6	0	0	0	0	0	0	0	0	0
Cysub	16	0	0	0	0	0	0	0	0	0	0	0
Cysp1	0	0	0	0	0	0	0	0	0	0	0	0

Table 38 (continued)

	site1-Jul	site2-Jul	site3-Jul	site4-Jul	site5-Jul	site6-Jul	site7-Jul	site8-Jul	site9-Jul	site10-Jul	site11-Jul	site12-Jul
Cysp2	0	0	0	0	0	0	0	0	0	0	0	0
Dicon	0	0	0	0	0	0	0	0	0	0	0	0
Dedel	220	0	0	0	0	0	0	0	0	0	0	0
Desp1	0	0	0	0	0	0	0	0	0	0	0	0
Diobl	9	0	292	0	0	0	0	0	0	0	0	0
Diocu	3	0	0	0	0	0	0	0	0	0	0	0
Dipse	0	0	0	0	0	0	0	6	0	0	0	0
Enelg	0	0	0	0	0	0	0	0	0	0	0	0
Engae	0	0	0	0	0	0	0	0	0	0	0	0
Enmal	204	0	0	0	0	0	0	0	0	0	0	0
Enmes	0	0	18	0	0	0	5	0	0	0	0	0
Enmin	0	0	0	0	0	0	0	0	0	0	0	0
Enpro	0	0	0	0	0	0	0	0	0	0	0	0
Ensp1	0	0	0	0	0	0	0	0	0	0	0	0
Enlee	123	0	0	0	0	0	0	0	0	0	0	0
Enmic	387	8	18	0	0	0	0	0	0	0	0	0
Eomin	0	0	0	0	0	0	0	0	0	0	0	0
Epcis	0	0	24	0	0	0	0	0	0	0	0	0
Eubil	0	0	6	0	0	0	0	0	0	0	0	0
Eucur	0	0	0	0	0	0	0	0	0	0	0	0
Eumin	0	8	0	0	0	0	0	0	8	0	0	0
Fapyg	0	0	0	0	0	0	0	0	0	0	0	0
Frcap	0	0	0	0	0	0	0	0	0	0	0	0
Frrum	0	0	0	0	7	0	0	0	0	0	0	0
Frvau	0	0	0	0	0	0	0	0	0	0	0	0
Frwei	0	0	0	0	0	0	0	0	0	0	0	0
Haven	0	0	0	0	0	0	0	0	0	0	0	5
Hamon	0	8	0	18	0	12	0	17	0	0	0	5
Habul	6	0	0	0	0	0	0	0	0	0	0	0
Hipse	0	16	0	0	0	0	0	0	23	0	5	19
Hiavi	0	0	0	0	0	0	0	0	0	0	0	0
Gecum	3	0	0	0	0	0	0	0	0	0	0	0
Gedec	0	24	0	0	0	0	21	6	0	0	0	0
Gepun	0	40	0	0	0	0	42	0	0	0	5	0
Goaff	0	0	30	0	0	0	0	0	8	0	0	0
Goaur	6	0	60	307	7	0	0	0	0	0	0	0
Goboh	0	0	0	0	0	0	0	0	0	0	0	0
Gogra	0	0	48	0	0	35	0	0	0	0	0	0
Gojav	0	0	0	12	0	247	0	0	0	0	0	0
Golan	0	0	0	0	0	0	0	0	31	0	0	0
Gomic	0	0	0	0	0	106	0	0	8	0	0	0
Gomin	0	0	0	0	0	0	0	0	0	0	0	0
Gopar	0	0	0	0	120	35	16	17	8	11	19	5
Golag	0	40	0	6	0	117	0	0	0	0	0	0

Table 38 (continued)

	site1-Jul	site2-Jul	site3-Jul	site4-Jul	site5-Jul	site6-Jul	site7-Jul	site8-Jul	site9-Jul	site10-Jul	site11-Jul	site12-Jul
Gopro	0	0	0	0	0	0	0	0	0	0	0	0
Gopse	0	0	0	0	0	0	0	0	46	0	0	0
Gopum	6	72	54	1444	0	70	0	0	0	0	0	0
Gopal	13	0	0	0	0	0	0	0	0	0	0	0
Gotru	0	0	0	0	0	0	0	0	0	0	0	0
Gyobs	0	0	0	0	0	0	0	0	0	0	0	0
Gysca	0	0	0	0	0	0	0	0	0	0	0	14
Gyspe	0	8	66	0	0	0	0	0	0	0	0	32
Kosp1	0	0	0	0	0	0	0	0	0	0	0	0
Lumit	0	0	0	0	0	0	0	0	0	0	0	0
Lulan	0	0	0	0	0	0	0	0	0	0	0	0
Lusax	0	0	0	0	0	0	0	0	0	0	0	0
Lusim	6	0	0	0	0	0	0	0	0	0	0	0
Luter	0	0	0	0	14	0	0	0	0	0	0	0
Lupse	0	0	0	0	0	0	0	0	0	0	0	0
Lusp1	0	0	0	0	0	0	0	0	0	0	5	0
Myagr	0	0	0	0	0	0	0	0	0	0	0	0
Naamp	0	0	0	0	0	0	0	23	0	0	0	0
Naant	0	0	0	0	0	0	0	0	0	0	0	0
Nacap	126	0	0	0	0	0	0	0	0	0	0	0
Nacat	0	0	0	0	0	0	0	0	0	0	0	0
Nacat	0	0	0	0	0	0	0	0	0	0	0	0
Nacin	0	0	0	0	0	0	0	0	0	0	0	2
Nacry	0	8	0	0	0	0	0	0	0	0	0	0
Naeri	0	0	0	0	0	0	0	0	0	0	0	0
Naesc	0	8	0	0	0	0	0	0	0	0	0	0
Nager	0	0	0	0	0	0	10	0	0	11	0	19
Nahei	9	0	185	0	0	0	5	0	0	0	0	0
Nahin	6	0	0	0	0	0	5	0	0	0	0	0
Najac	0	0	0	0	0	0	0	0	0	0	0	0
Narad	0	0	0	0	0	0	0	0	0	0	0	0
Narei	0	0	36	55	0	0	0	6	0	0	0	0
Naros	0	0	0	0	0	0	0	0	0	0	0	0
Nasim	0	0	18	6	0	0	0	28	0	11	5	0
Nasup	0	0	0	6	85	23	21	0	15	22	5	223
Namer	0	0	0	0	63	0	0	0	0	0	0	0
Navan	0	0	0	0	0	0	0	0	0	22	5	0
Navia	0	0	0	0	0	0	5	0	0	0	0	0
Navir	0	0	42	0	0	0	0	0	0	0	0	0
Naaqu	0	0	0	0	0	0	0	0	0	0	0	0
Nabel	0	40	0	0	0	0	0	0	0	0	0	0
Nalei	0	0	0	0	0	0	0	0	0	0	0	0
Napar	0	0	0	0	0	0	10	0	0	0	0	0
Navek	0	16	215	0	0	0	0	34	15	11	5	0

Table 38 (continued)

	site1-Jul	site2-Jul	site3-Jul	site4-Jul	site5-Jul	site6-Jul	site7-Jul	site8-Jul	site9-Jul	site10-Jul	site11-Jul	site12-Jul
Nasp1	0	0	0	0	0	0	0	0	0	0	0	0
Nasp2	0	0	0	0	0	0	0	0	0	0	0	0
Nanan	0	0	0	0	0	0	0	0	0	0	0	0
Neaff	5	0	0	0	0	0	0	0	0	0	0	0
Nesev	0	0	0	0	0	0	0	0	0	0	0	0
Nebin	0	0	0	0	0	0	0	0	0	0	0	0
Nedub	0	0	0	0	0	0	0	0	0	0	0	0
Negra	0	0	0	0	0	0	0	0	0	0	0	0
Niamp	0	0	0	0	0	0	0	0	0	0	0	0
Niang	0	0	0	0	0	0	0	0	0	0	0	0
Nicla	0	0	0	0	7	0	0	0	0	0	0	0
Nicom	0	0	0	0	0	0	0	0	0	0	0	0
Nibal	0	0	0	0	0	0	0	0	0	0	0	0
Nides	0	0	0	0	0	12	0	0	0	0	0	0
Nidis	0	0	6	0	7	0	0	0	0	0	0	5
Nicon	3	0	0	0	0	0	0	0	0	0	0	0
Nifre	0	16	0	0	0	12	0	0	0	0	0	0
Nifru	0	0	12	0	0	23	0	0	8	0	0	0
Nigra	0	32	0	0	0	0	0	0	0	0	0	9
Nihan	0	0	0	0	0	0	0	0	0	0	0	0
Nihoe	0	0	0	0	0	0	0	0	0	0	0	0
Niint	0	0	0	0	0	0	0	0	0	0	0	0
Nimin	0	0	0	0	0	0	0	0	0	0	0	0
Nilor	0	8	0	0	0	0	0	0	0	0	0	0
Nipal	0	40	0	0	35	12	339	17	302	88	56	23
Nideb	0	0	0	0	0	0	0	0	0	0	0	0
Nipar	0	0	0	0	0	0	0	0	0	0	5	0
Niper	0	0	0	0	0	0	0	0	0	0	0	5
Nipum	0	0	0	0	0	0	0	0	0	0	0	0
Nirec	0	0	0	12	14	0	0	0	0	0	0	5
Nirev	0	0	0	0	0	0	0	0	8	0	0	0
Nisal	0	0	0	0	0	0	0	0	0	0	0	5
Nisca	0	0	0	0	0	0	0	0	0	0	0	87
Nisin	0	0	12	6	0	0	0	0	0	0	0	0
Nisol	0	0	0	0	0	0	0	0	0	0	0	0
Nivut	0	0	0	0	0	47	57	0	0	0	0	0
Haamp	0	0	0	0	0	0	0	6	0	0	0	5
Trsal	0	8	0	6	0	0	0	0	0	0	0	0
Piaci	0	0	0	0	0	0	0	0	8	0	0	0
Pibic	0	0	0	0	0	0	0	0	0	0	0	0
Pioom	0	0	0	0	0	0	0	0	0	0	0	0
Pipse	0	0	0	0	0	0	0	0	0	0	0	0
Pisub	0	0	0	0	0	0	0	0	0	0	0	0
Piint	0	0	24	0	0	0	0	0	0	11	0	0

Table 38 (continued)

	site1-Jul	site2-Jul	site3-Jul	site4-Jul	site5-Jul	site6-Jul	site7-Jul	site8-Jul	site9-Jul	site10-Jul	site11-Jul	site12-Jul
Plcap	0	0	0	0	0	0	0	0	0	0	0	0
Plwit	0	0	0	0	0	0	0	6	0	0	0	0
Plele	0	0	0	0	0	0	0	0	0	0	0	0
Plpro	0	0	0	0	0	0	0	0	0	0	0	0
Plfre	0	24	0	0	70	0	10	0	23	11	28	0
Plros	0	0	0	0	0	0	0	6	0	0	0	0
Plsp1	0	0	0	0	0	0	0	0	0	0	0	0
Plneg	0	0	0	0	0	0	0	0	0	0	0	0
Reuni	0	0	0	0	0	0	0	0	0	0	0	0
Rhcon	0	0	0	0	0	0	0	0	0	0	0	5
Rhgib	0	0	0	0	0	0	0	0	0	0	0	0
Rhmus	0	0	18	0	0	0	0	0	0	0	0	9
Stanc	0	0	0	0	0	0	0	0	0	0	0	0
Stkri	0	0	0	0	0	0	0	0	0	0	0	0
Stsmi	0	0	0	0	0	0	0	0	0	0	0	0
Stsp1	0	0	0	0	0	0	0	0	0	0	0	0
Sestr	0	80	0	0	85	0	57	11	23	99	1359	183
Selba	3	0	0	0	7	0	0	0	0	0	0	0
Selbl	9	0	42	0	0	0	0	0	0	0	0	0
Secap	0	0	0	0	0	0	0	0	0	0	0	5
Selse	0	0	0	0	0	12	0	0	0	0	0	0
Sella	13	0	0	0	0	0	0	0	8	11	0	0
Selpa	0	0	0	0	0	0	10	0	0	0	0	0
Seobe	0	0	0	0	0	0	0	0	0	0	0	0
Selst	9	0	0	0	0	0	0	0	0	0	0	0
Selsu	0	0	119	0	0	0	0	0	0	0	0	0
Sesp1	0	0	0	0	0	0	0	0	0	0	0	0
Sesp2	0	0	0	0	0	0	0	0	0	0	0	0
Suang	0	0	0	0	0	0	0	0	0	0	0	0
Sufon	0	0	0	0	0	0	0	0	0	11	0	0
Sulin	0	0	0	0	0	0	0	0	0	0	0	0
Suspl	0	0	0	0	0	0	0	0	0	0	0	0
Suost	0	8	0	0	0	0	0	0	0	0	0	0
Suten	0	0	0	0	0	0	0	0	0	0	0	0
Suner	0	0	0	0	0	0	0	0	0	0	0	0
Susp1	0	0	0	0	0	0	0	0	0	0	0	0
Susp2	0	0	0	0	0	0	0	0	0	0	0	0
Susp3	0	0	0	0	0	0	0	0	0	0	0	0
Susp4	0	0	0	0	0	0	0	0	0	0	0	0
Ularc	0	0	0	0	0	0	0	0	15	0	0	0
Ullan	0	0	0	43	155	0	0	0	0	0	0	0
Ulram	0	0	0	0	0	0	0	0	0	0	0	0
Ulull	88	351	0	37	0	0	5	6	0	19	5	0

Table 39 The results of diatom cell counted of the Wang River in August 2012

	site1-Aug	site2-Aug	site3-Aug	site4-Aug	site5-Aug	site6-Aug	site7-Aug	site8-Aug	site9-Aug	site10-Aug	site11-Aug	site12-Aug
Augra	0	0	0	0	0	0	10	6	0	0	0	0
Cymen	0	0	0	0	0	0	0	0	0	0	5	6
Cysha	0	0	0	0	0	0	0	0	0	0	0	0
Diste	0	0	18	13	7	9	10	0	0	0	0	0
Acinf	0	0	0	0	0	0	0	0	0	0	0	0
Acobl	0	0	0	0	7	0	0	0	0	0	0	0
Acpus	0	0	0	0	0	0	0	0	0	0	0	0
Acexm	0	17	31	0	0	0	0	0	0	0	0	0
Acexi	37	0	55	208	7	0	0	0	9	0	0	0
Acjak	7	0	0	0	0	0	0	0	0	0	0	0
Aclat	0	0	6	0	0	0	0	0	0	0	0	0
Acmim	368	9	61	62	87	427	10	0	9	0	0	3
Acsta	14	0	0	0	0	0	0	0	0	0	0	0
Acsub	0	0	0	22	0	0	0	0	0	0	0	0
Acsp1	8	0	0	0	0	0	0	0	0	0	0	0
Acsp2	0	0	0	0	0	0	0	0	0	0	0	0
Acsp3	0	0	0	0	6	0	0	0	0	0	0	0
Adbry	3	0	12	9	0	0	0	0	0	0	0	0
Amlir	0	26	0	4	0	0	0	0	0	0	0	6
Ansp1	0	0	0	0	0	0	0	0	0	0	9	0
Bamic	0	0	0	0	0	0	0	0	0	0	0	0
Bapax	3	0	0	0	0	0	0	0	0	0	0	0
Brneo	0	0	49	31	0	0	0	0	0	26	0	0
Cabac	7	9	0	13	7	0	0	0	0	0	0	0
Caalp	0	0	12	0	0	0	0	0	0	0	0	0
Capei	0	0	0	9	0	0	0	0	0	0	0	0
Caven	0	0	0	0	0	0	0	0	0	0	0	0
Caten	0	0	0	0	0	0	0	0	0	0	0	0
Casp1	0	0	0	0	0	0	0	0	0	0	0	0
Casp2	3	17	0	0	14	0	0	0	0	0	0	0
Copla	0	0	0	0	7	0	83	0	0	3	5	0
Crmoi	0	0	0	0	0	0	0	0	0	0	0	0
Crmos	0	0	0	0	0	0	0	0	0	0	0	0
Crvix	0	0	12	0	0	0	0	0	0	0	0	0
Cramb	0	0	0	0	0	0	0	0	0	0	0	0
Cyaff	0	9	6	0	14	0	10	0	0	0	65	0
Cybif	125	0	0	0	0	0	0	0	0	0	0	0
Cypar	0	0	6	22	7	28	0	0	0	0	0	0
Cysum	14	0	0	0	0	0	0	0	0	0	0	0
Cytum	10	0	0	0	0	0	0	0	0	0	0	0
Cytur	0	0	0	0	0	0	0	0	3	0	9	0
Cyged	0	0	0	0	0	0	0	0	0	0	0	0
Cysub	27	0	0	0	0	0	0	0	0	0	0	0
Cysp1	0	0	0	22	0	0	0	0	0	0	0	0

Table 39 (continued)

	site1-Aug	site2-Aug	site3-Aug	site4-Aug	site5-Aug	site6-Aug	site7-Aug	site8-Aug	site9-Aug	site10-Aug	site11-Aug	site12-Aug
Cysp2	0	0	0	0	0	0	0	0	0	0	0	0
Dicon	0	0	0	0	0	0	0	0	0	0	0	0
Dedel	193	0	0	0	0	0	0	0	0	0	0	0
Desp1	0	0	0	0	0	0	0	0	0	0	0	0
Diobl	0	0	123	4	7	19	0	0	0	0	0	0
Diocu	0	0	0	0	0	0	0	0	0	0	0	0
Dipse	0	0	0	0	0	0	0	0	0	0	0	0
Enelg	0	0	0	0	0	0	0	0	0	0	0	0
Engae	0	0	0	177	0	0	0	0	0	0	0	0
Enmal	243	0	0	0	0	0	0	0	0	0	0	0
Enmes	0	9	12	0	0	0	0	0	19	0	0	0
Enmin	0	0	0	0	0	0	0	0	0	0	0	0
Enpro	0	0	0	0	0	0	0	0	0	0	0	0
Ensp1	0	0	0	0	0	0	0	0	0	0	0	0
Enlee	145	0	0	0	0	0	0	0	0	0	0	0
Enmic	805	0	0	0	0	0	0	0	0	0	0	0
Eomin	0	0	0	0	0	0	0	0	0	0	0	0
Epcis	0	0	0	0	0	0	0	0	0	0	0	0
Eubil	0	0	0	4	0	0	0	0	0	0	0	0
Eucur	0	0	0	0	0	0	0	0	0	0	0	0
Eumin	0	0	0	0	0	0	0	0	0	0	0	0
Fapyg	0	0	0	0	0	0	0	0	0	0	0	0
Frcap	0	0	0	0	0	0	0	0	0	0	0	0
Frrum	0	0	0	0	0	0	0	0	0	0	0	0
Frvau	0	0	0	0	0	0	0	0	0	0	0	0
Frwei	0	0	0	0	0	0	0	0	0	0	0	0
Haven	0	0	0	0	0	0	0	0	0	0	0	0
Hamon	0	0	0	0	0	19	0	0	0	0	0	0
Habul	0	17	0	0	0	0	0	0	0	0	0	0
Hipse	0	0	0	0	0	0	0	0	0	20	46	6
Hiavi	0	0	0	0	0	0	0	0	0	0	0	0
Gecum	3	0	0	0	0	0	0	0	0	0	0	0
Gedec	0	0	0	0	0	0	0	11	0	0	0	0
Gepun	0	9	0	0	0	0	31	3	0	0	0	3
Goaff	0	0	0	0	0	0	10	0	0	0	0	0
Goaur	0	0	0	40	0	24	73	0	0	0	0	3
Goboh	0	0	0	0	0	0	0	0	0	0	0	0
Gogra	24	0	31	4	0	0	0	0	0	0	0	0
Gojav	0	0	0	4	14	5	0	0	0	0	0	0
Golan	0	0	0	0	7	0	0	0	3	0	0	0
Gomic	0	0	0	0	7	0	0	0	0	0	0	0
Gomin	0	0	0	0	0	0	0	0	0	0	0	0
Gopar	0	9	0	0	78	0	41	0	0	0	0	0
Golag	0	9	0	0	0	0	0	0	0	0	0	0

Table 39 (continued)

	site1-Aug	site2-Aug	site3-Aug	site4-Aug	site5-Aug	site6-Aug	site7-Aug	site8-Aug	site9-Aug	site10-Aug	site11-Aug	site12-Aug
Gopro	0	0	0	0	0	0	0	0	0	0	0	0
Gopse	0	0	0	0	0	0	0	0	0	0	0	0
Gopum	0	9	6	120	0	0	0	0	0	0	0	0
Gopal	27	0	0	0	0	0	0	0	0	0	0	0
Gotru	0	0	0	0	0	0	0	0	0	0	0	0
Gyobs	0	0	0	0	0	0	0	0	0	0	0	0
Gysca	0	0	0	0	7	0	0	0	0	0	0	0
Gyspe	0	26	61	0	7	0	0	11	0	0	0	6
Kosp1	0	0	137	9	0	308	0	0	0	0	0	0
Lumit	0	9	0	0	0	0	0	0	9	0	0	0
Lulan	0	0	0	0	0	0	0	0	0	0	0	0
Lusax	0	0	0	0	0	0	0	0	0	0	0	0
Lusim	0	0	0	0	0	0	10	0	0	0	0	0
Luter	0	0	0	0	14	0	0	0	0	0	0	0
Lupse	0	0	0	0	0	0	0	0	0	0	0	0
Lusp1	0	0	0	0	0	0	0	0	28	0	0	0
Myagr	0	0	0	0	0	0	0	0	0	0	0	0
Naamp	0	0	6	0	14	0	0	0	9	0	0	0
Naant	0	0	0	0	0	0	0	0	0	0	5	0
Nacap	81	0	0	0	0	0	0	0	0	0	0	0
Nacat	0	0	0	9	0	0	0	0	0	0	0	0
Nacat	0	0	0	0	0	0	0	0	0	0	0	0
Nacin	0	0	0	0	0	0	0	0	0	0	0	0
Nacry	0	17	0	0	0	0	0	0	0	0	0	0
Naeri	0	0	0	0	0	0	0	0	0	0	0	0
Naesc	0	0	0	0	0	0	0	0	0	0	0	0
Nager	0	0	0	0	0	0	0	0	0	0	0	6
Nahei	37	0	86	0	0	0	0	0	0	0	0	0
Nahin	3	0	0	0	0	0	0	0	0	0	0	0
Najac	0	0	0	0	0	0	0	0	0	0	0	0
Narad	0	0	0	0	0	0	0	0	0	0	0	0
Narei	0	0	12	239	0	0	0	0	0	0	0	0
Naros	0	0	0	0	0	0	0	0	0	0	0	0
Nasim	0	26	18	0	35	0	21	0	0	0	5	0
Nasup	0	0	0	4	21	14	10	0	9	20	0	36
Namer	27	0	0	0	57	0	10	0	0	0	0	0
Navan	0	0	0	0	7	0	0	0	0	0	0	0
Navia	7	17	0	4	0	0	10	0	0	0	0	0
Navir	0	0	31	4	0	0	0	0	0	0	0	0
Naaqu	7	0	0	0	0	0	0	0	0	0	0	0
Nabel	0	26	0	0	0	0	0	0	0	0	0	0
Nalei	0	0	0	0	0	0	0	0	0	0	0	0
Napar	7	0	0	0	0	0	21	0	0	0	19	0
Navek	0	0	233	58	0	0	0	0	9	0	0	0

Table 39 (continued)

	site1-Aug	site2-Aug	site3-Aug	site4-Aug	site5-Aug	site6-Aug	site7-Aug	site8-Aug	site9-Aug	site10-Aug	site11-Aug	site12-Aug
Nasp1	8	0	0	0	0	0	0	0	0	0	0	0
Nasp2	0	2	0	0	0	0	0	0	0	0	0	0
Nanan	0	0	0	0	0	0	0	0	0	0	0	0
Neaff	0	0	0	0	14	0	0	0	0	0	0	0
Nesev	0	0	0	0	0	0	0	0	0	0	0	0
Nebin	7	0	0	0	0	0	0	0	0	0	0	0
Nedub	0	0	0	0	0	0	0	0	0	0	0	0
Negra	0	0	0	0	0	0	0	0	0	0	0	0
Niamp	0	0	0	0	0	0	0	0	0	0	0	0
Niang	0	0	0	4	0	0	0	0	0	0	0	0
Nicla	0	0	0	0	0	0	0	0	0	0	0	6
Nicom	0	0	0	0	0	0	0	0	0	0	0	0
Nibal	0	0	0	0	0	0	0	0	0	0	0	0
Nides	0	0	0	0	0	0	0	0	0	0	0	0
Nidis	0	26	6	0	0	0	0	0	0	0	0	0
Nicon	3	0	0	0	0	0	0	0	0	0	0	0
Nifre	0	0	98	0	0	0	0	0	0	0	0	0
Nifru	0	17	25	0	0	33	0	0	0	0	0	6
Nigra	0	0	0	0	0	0	31	3	0	39	9	6
Nihan	0	0	0	0	0	0	0	0	0	0	0	0
Nihoe	0	0	0	0	0	0	0	0	0	0	0	0
Niint	0	26	0	0	0	0	0	0	0	0	0	0
Nimin	0	0	0	0	0	0	0	0	0	0	0	0
Nilor	0	0	0	0	7	0	0	0	9	0	0	18
Nipal	0	185	74	0	128	0	156	652	207	110	380	42
Nideb	0	17	0	0	0	0	0	0	0	0	0	0
Nipar	0	0	0	4	0	0	0	0	0	0	9	0
Niper	0	0	0	0	0	0	0	0	0	0	0	0
Nipum	0	0	0	0	0	0	0	0	0	0	0	0
Nirec	0	0	37	49	35	0	0	0	0	0	0	24
Nirev	0	0	0	0	0	0	0	0	6	0	5	0
Nisal	0	0	0	0	0	0	0	0	0	0	0	0
Nisca	0	0	0	0	0	0	0	0	0	0	0	3
Nisin	0	0	6	13	0	0	0	0	0	0	0	0
Nisol	7	0	0	0	0	0	0	0	0	0	0	0
Nivut	0	26	0	0	64	14	73	0	0	0	5	0
Haamp	0	0	0	0	7	5	0	6	9	0	0	0
Trsal	0	9	0	0	0	0	0	0	0	0	0	3
Piaci	0	0	0	0	0	0	0	0	9	0	9	18
Pibic	0	0	0	0	0	0	0	0	0	0	0	0
Pioom	0	0	0	0	0	0	0	0	0	0	0	0
Pipse	0	0	0	0	7	0	0	0	0	0	0	0
Pisub	0	0	0	0	0	0	0	0	0	0	0	0
Piint	0	17	6	0	0	0	0	0	9	0	0	0

Table 39 (continued)

	site1-Aug	site2-Aug	site3-Aug	site4-Aug	site5-Aug	site6-Aug	site7-Aug	site8-Aug	site9-Aug	site10-Aug	site11-Aug	site12-Aug
Plcap	0	0	0	0	0	0	0	0	9	0	0	0
Plwit	0	0	0	0	0	0	0	0	0	0	0	0
Plele	0	0	0	0	0	0	0	0	0	0	0	0
Plpro	0	0	0	0	7	0	0	0	0	0	0	0
Plfre	0	9	0	0	71	0	21	0	0	0	9	12
Plros	0	0	0	0	14	0	0	6	0	0	5	0
Plsp1	0	0	0	0	0	0	0	0	0	0	0	0
Plneg	0	0	0	0	0	0	0	0	0	0	0	0
Reuni	0	0	0	0	0	0	0	0	0	0	0	0
Rhcon	0	0	0	0	0	0	0	0	0	0	0	0
Rhgib	0	0	0	0	0	0	0	0	0	0	0	0
Rhmus	0	0	0	0	0	5	0	0	0	0	0	0
Stanc	0	0	0	0	7	0	0	0	0	0	0	0
Stkri	3	0	0	0	0	0	0	0	0	0	0	0
Stsmi	3	0	0	0	0	0	0	0	0	0	0	0
Stsp1	0	0	0	0	0	0	0	0	0	0	0	0
Sestr	0	43	6	4	71	0	166	11	0	26	473	142
Selba	3	0	0	0	0	0	0	0	0	0	0	0
Selbl	0	0	18	0	14	0	0	0	0	0	0	0
Secap	0	0	0	0	7	0	0	0	0	0	0	0
Selse	0	0	0	0	0	0	0	0	0	0	0	0
Sella	20	9	12	4	7	0	21	3	3	0	0	0
Selpa	0	0	0	0	0	0	0	0	0	0	0	0
Seobe	0	9	0	0	0	0	0	0	0	2	0	0
Selst	0	0	0	0	0	0	0	0	0	0	0	0
Selsu	0	0	12	0	7	0	0	0	0	0	0	0
Sesp1	0	0	0	0	0	0	0	0	0	0	0	0
Sesp2	0	2	4	0	0	0	0	0	0	0	0	0
Suang	0	0	0	0	0	0	0	0	0	0	0	3
Sufon	0	0	0	0	0	0	0	0	0	0	0	0
Sulin	0	0	0	0	0	0	0	0	0	0	0	0
Suspl	0	0	0	0	0	0	0	0	0	0	0	0
Suost	0	0	0	0	7	0	0	0	0	0	0	0
Suten	0	0	0	0	0	0	0	0	0	0	0	0
Suner	0	0	0	0	0	0	0	0	0	0	0	0
Susp1	0	0	0	0	0	0	0	0	0	0	0	0
Susp2	0	0	0	0	0	0	0	0	0	0	0	0
Susp3	0	0	0	0	0	0	0	0	0	0	0	0
Susp4	0	0	0	0	0	0	0	0	0	0	0	0
Ularc	0	0	0	27	0	0	10	0	0	0	0	0
Ullan	7	0	0	4	14	0	0	0	0	0	0	24
Ulram	0	0	0	0	0	0	0	0	0	0	0	0
Ulull	98	51	0	0	0	0	0	0	9	3	19	0

Table 40 The results of diatom cell counted of the Wang River in September 2012

	site1-Sep	site2-Sep	site3-Sep	site4-Sep	site5-Sep	site6-Sep	site7-Sep	site8-Sep	site9-Sep	site10-Sep	site11-Sep	site12-Sep
Augra	0	0	0	0	0	0	0	8	3	0	0	0
Cymen	0	0	0	0	0	0	0	0	0	0	8	20
Cysha	0	0	0	0	0	0	0	8	0	0	0	0
Diste	0	0	33	25	0	14	14	0	0	0	0	0
Acinf	0	0	0	0	0	0	0	0	0	0	0	0
Acobl	0	0	0	0	0	0	0	0	3	0	0	0
Acpus	0	0	0	0	0	0	0	0	0	0	0	0
Acexm	0	20	7	0	0	0	0	0	0	0	0	0
Acexi	0	0	42	62	0	0	0	0	0	0	0	0
Acjak	0	0	0	0	0	0	0	0	0	0	0	0
Aclat	0	0	0	0	7	0	0	0	0	0	0	0
Acmim	9	0	20	19	7	605	14	0	0	0	0	5
Acsta	0	0	0	0	0	0	0	0	0	0	0	0
Acsub	0	0	0	0	0	0	0	0	0	0	0	0
Acsp1	4	0	0	0	0	0	0	0	0	0	0	0
Acsp2	0	0	0	0	0	0	0	0	0	0	0	0
Acsp3	0	0	0	0	0	0	0	0	0	0	0	0
Adbry	0	0	2	0	0	0	0	0	0	0	0	0
Amlir	0	20	0	12	0	0	0	8	0	0	0	0
Ansp1	0	0	0	0	0	0	0	0	0	0	0	0
Bamic	0	0	0	0	0	0	0	0	0	0	0	0
Bapax	0	0	0	0	7	0	0	0	0	0	0	0
Brneo	0	0	53	62	7	0	0	0	0	32	0	0
Cabac	0	0	0	0	7	0	0	0	0	0	0	0
Caalp	0	0	5	0	0	0	0	0	0	0	0	0
Capei	0	0	0	0	0	0	0	0	0	0	0	0
Caven	0	0	0	0	0	0	0	0	0	0	0	0
Caten	0	0	0	0	0	0	0	0	0	0	0	0
Casp1	0	0	0	0	0	0	0	0	0	0	0	0
Casp2	0	20	0	0	0	0	0	0	0	0	0	0
Copla	0	0	0	37	14	0	0	0	0	0	0	0
Crmoi	0	0	0	0	0	0	0	0	11	0	0	0
Crmos	0	0	0	0	7	0	0	0	0	0	0	0
Crvix	0	0	3	0	0	0	0	0	0	0	0	0
Cramb	0	0	0	0	0	0	0	0	0	0	0	0
Cyaff	0	0	0	0	14	0	49	0	0	0	0	0
Cybif	17	0	0	0	0	0	0	0	0	0	0	0
Cypar	0	0	2	210	0	28	14	0	0	0	0	0
Cysum	9	0	0	0	0	0	0	0	0	0	0	0
Cytum	0	0	0	0	0	0	0	0	0	0	0	0
Cytur	0	0	0	0	0	0	0	8	0	0	0	0
Cyged	0	0	0	0	0	0	0	0	0	0	0	0
Cysub	0	0	0	0	0	0	0	0	0	0	0	0
Cysp1	0	0	0	0	7	0	0	0	0	0	0	0

Table 40 (continued)

	site1-Sep	site2-Sep	site3-Sep	site4-Sep	site5-Sep	site6-Sep	site7-Sep	site8-Sep	site9-Sep	site10-Sep	site11-Sep	site12-Sep
Cysp2	0	0	0	0	0	0	0	0	0	0	0	0
Dicon	0	0	0	0	0	0	0	0	11	0	0	0
Dedel	121	0	0	0	0	0	0	0	0	0	0	0
Desp1	4	0	0	0	0	0	0	0	0	0	0	0
Diobl	26	0	20	0	0	28	0	8	0	0	0	0
Diocu	0	0	0	0	0	0	0	0	0	0	0	0
Dipse	0	0	0	0	0	0	0	0	0	0	0	0
Enelg	0	0	0	0	0	14	0	0	0	0	0	0
Engae	0	0	0	0	0	0	0	0	0	0	0	0
Enmal	68	0	0	0	0	0	0	0	0	0	0	0
Enmes	0	0	13	0	0	0	0	8	11	0	0	0
Enmin	0	0	0	0	7	0	14	0	0	0	0	0
Enpro	0	0	0	0	0	0	0	0	0	0	0	0
Ensp1	0	0	0	0	0	0	0	0	0	0	0	0
Enlee	111	0	0	0	0	0	0	0	0	0	0	0
Enmic	26	0	0	0	0	0	0	0	0	0	0	0
Eomin	0	0	0	0	0	0	0	0	8	0	0	0
Epcis	0	0	0	0	0	0	0	0	0	0	0	0
Eubil	0	0	0	0	0	0	0	0	0	0	0	0
Eucur	0	0	0	0	0	0	0	0	5	0	0	0
Eumin	0	0	0	0	0	0	0	0	0	0	0	0
Fapyg	0	0	0	0	0	0	0	0	8	0	0	0
Frcap	0	0	0	0	0	0	14	0	0	0	0	0
Frrum	0	0	0	0	0	0	0	0	0	0	0	0
Frvau	0	0	0	0	0	0	0	0	0	0	0	0
Frwei	0	0	0	0	0	0	0	0	0	0	0	0
Haven	0	0	0	0	0	0	0	0	0	0	0	0
Hamon	0	0	0	0	0	28	0	0	5	0	8	0
Habul	0	10	0	0	0	0	0	0	0	0	0	0
Hipse	0	0	0	0	0	0	0	0	0	13	0	40
Hiavi	0	0	0	0	0	0	0	0	0	0	0	0
Gecum	0	0	0	0	0	0	0	0	0	0	0	0
Gedec	0	0	0	31	0	0	0	0	3	0	0	0
Gepun	0	0	0	0	0	0	0	8	0	0	0	0
Goaff	0	0	0	0	0	0	0	8	0	0	0	0
Goaur	145	0	0	56	7	36	0	0	0	0	0	0
Goboh	0	0	0	0	0	0	0	0	0	0	0	0
Gogra	51	0	21	49	7	0	0	0	0	0	0	0
Gojav	0	0	0	6	0	7	0	0	0	0	0	0
Golan	0	0	0	0	7	0	0	8	0	0	0	0
Gomic	0	0	0	0	14	0	0	0	16	0	0	0
Gomin	0	0	0	0	0	0	0	8	0	0	0	0
Gopar	0	0	0	31	55	0	92	573	5	0	0	0
Golag	0	81	0	0	7	0	0	0	0	0	0	0

Table 40 (continued)

	site1-Sep	site2-Sep	site3-Sep	site4-Sep	site5-Sep	site6-Sep	site7-Sep	site8-Sep	site9-Sep	site10-Sep	site11-Sep	site12-Sep
Gopro	0	0	0	0	0	0	0	0	0	0	0	0
Gopse	0	0	0	0	0	0	0	0	5	0	0	0
Gopum	68	0	0	173	0	0	0	0	0	0	0	0
Gopal	17	0	0	0	0	0	0	0	0	0	0	0
Gotru	0	0	0	0	0	0	0	34	0	0	0	0
Gyobs	0	0	0	0	0	0	0	0	0	0	0	0
Gysca	0	20	0	19	20	0	0	0	0	0	0	0
Gyspe	0	31	0	6	0	0	0	0	0	0	0	0
Kosp1	0	0	0	0	0	462	0	0	0	0	0	0
Lumit	0	0	39	0	0	0	0	0	3	0	0	0
Lulan	0	0	0	0	0	0	0	0	0	0	0	0
Lusax	0	0	0	0	0	0	0	0	3	0	0	0
Lusim	0	0	0	0	0	0	0	0	0	0	0	0
Luter	0	0	0	0	0	0	0	0	0	0	0	0
Lupse	0	0	0	0	0	0	0	0	3	0	0	10
Lusp1	0	0	0	0	0	0	0	0	8	0	0	10
Myagr	0	0	0	0	0	0	0	0	0	0	0	0
Naamp	0	0	0	0	102	0	0	8	3	0	0	0
Naant	0	0	0	0	0	0	0	0	8	0	0	0
Nacap	17	0	0	0	0	0	0	0	0	0	0	0
Nacat	0	0	0	0	0	0	0	0	0	0	0	0
Nacat	0	0	0	0	0	0	0	0	0	0	0	0
Nacin	0	0	0	0	0	0	0	0	0	0	0	0
Nacry	0	31	0	0	0	0	0	0	0	0	0	0
Naeri	0	0	0	0	0	0	0	0	0	0	0	0
Naesc	0	10	0	0	0	0	0	0	3	0	0	0
Nager	0	0	0	0	61	0	0	0	11	0	0	0
Nahei	26	0	0	19	0	0	0	0	0	0	0	0
Nahin	9	0	0	0	0	0	0	0	0	0	0	0
Najac	0	0	0	0	0	0	0	0	5	0	0	0
Narad	0	0	0	0	0	0	0	0	0	0	0	0
Narei	0	0	0	6	0	0	0	0	0	0	0	0
Naros	0	0	0	0	0	0	0	0	0	0	0	0
Nasim	0	0	0	19	0	0	0	0	0	0	0	20
Nasup	0	0	0	12	68	21	7	0	0	0	8	0
Namer	247	0	0	0	20	0	14	0	0	0	0	0
Navan	0	0	0	0	0	0	0	0	0	21	23	0
Navia	0	10	0	0	34	0	49	0	0	0	0	0
Navir	0	0	0	0	0	0	0	0	0	0	0	0
Naaqu	0	0	0	0	0	0	0	0	0	0	0	0
Nabel	0	31	0	0	0	0	14	0	0	0	0	0
Nalei	0	0	0	0	0	0	0	0	0	0	0	0
Napar	60	0	0	0	14	0	0	0	0	0	0	0
Navek	0	10	0	19	0	0	0	0	11	0	0	0

Table 40 (continued)

	site1-Sep	site2-Sep	site3-Sep	site4-Sep	site5-Sep	site6-Sep	site7-Sep	site8-Sep	site9-Sep	site10-Sep	site11-Sep	site12-Sep
Nasp1	0	0	0	0	0	0	0	0	0	0	0	0
Nasp2	0	0	0	0	0	0	0	0	0	0	0	0
Nanan	0	0	0	0	0	0	0	0	0	0	0	0
Neaff	0	0	0	0	0	0	0	0	0	0	0	0
Nesev	0	0	0	0	0	0	0	0	0	0	0	0
Nebin	0	0	0	0	0	0	0	0	0	0	0	0
Nedub	0	0	0	0	0	0	0	0	0	0	0	0
Negra	0	0	0	0	0	0	0	0	5	0	0	0
Niamp	0	0	0	0	0	0	0	0	0	0	0	0
Niang	0	0	0	0	0	0	0	0	0	0	0	0
Nicla	0	0	0	6	0	0	14	0	0	0	0	0
Nicom	0	0	0	0	0	0	0	0	0	0	0	0
Nibal	0	0	0	0	0	0	0	0	0	0	0	0
Nides	0	0	0	0	0	0	0	0	0	0	0	0
Nidis	0	41	0	0	7	0	0	0	0	0	15	0
Nicon	17	0	0	0	0	0	0	0	0	0	0	0
Nifre	0	0	15	0	0	0	0	0	0	0	0	0
Nifru	0	0	12	0	0	50	0	0	0	0	0	0
Nigra	0	0	0	0	0	0	0	0	0	102	30	45
Nihan	0	0	0	0	0	0	0	0	0	0	0	0
Nihoe	0	0	0	0	0	0	0	8	0	0	0	0
Niint	0	61	0	0	0	0	0	0	0	0	0	0
Nimin	0	0	0	0	0	0	0	0	3	0	0	16
Nilor	0	0	0	6	0	0	0	0	0	0	0	0
Nipal	0	81	39	6	150	0	268	169	94	69	434	130
Nideb	0	0	0	0	0	0	0	0	0	0	0	0
Nipar	0	0	0	0	0	0	0	0	5	0	0	0
Niper	0	0	0	0	0	0	0	0	3	0	8	0
Nipum	0	0	0	0	0	0	0	0	5	0	15	0
Nirec	0	0	77	37	27	0	21	0	0	0	15	65
Nirev	0	0	0	0	0	0	0	0	5	21	8	0
Nisal	0	0	0	0	0	0	0	0	0	0	0	0
Nisca	0	0	0	0	0	0	0	0	0	0	0	0
Nisin	17	0	0	0	0	0	0	0	0	0	0	0
Nisol	0	0	0	0	0	0	0	0	0	0	0	0
Nivut	0	0	0	0	27	21	42	0	0	80	129	48
Haamp	0	0	110	0	0	7	0	0	0	0	0	0
Trsal	0	0	0	0	0	0	0	0	0	0	0	0
Piaci	0	0	0	0	0	0	0	0	0	0	0	15
Pibic	0	0	0	0	0	0	0	0	3	0	0	0
Pioom	0	0	0	0	0	0	0	0	0	0	0	0
Pipse	0	0	0	0	0	0	0	0	0	0	0	0
Pisub	0	0	0	0	0	0	0	0	0	0	0	0
Piint	0	20	0	0	0	0	0	0	5	0	0	0

Table 40 (continued)

	site1-Sep	site2-Sep	site3-Sep	site4-Sep	site5-Sep	site6-Sep	site7-Sep	site8-Sep	site9-Sep	site10-Sep	site11-Sep	site12-Sep
Plcap	0	0	0	0	0	0	0	0	0	0	0	0
Plwit	0	0	0	0	0	0	0	0	0	0	0	0
Plele	0	0	0	0	0	0	0	0	0	0	0	0
Plpro	0	0	0	0	0	0	0	0	3	0	0	0
Plfre	0	0	0	0	0	0	14	0	3	0	0	0
Plros	0	0	0	0	0	0	0	0	3	0	0	0
Plsp1	0	0	0	0	0	0	0	0	0	0	0	0
Plneg	0	0	0	0	0	0	0	0	0	0	0	0
Reuni	0	0	0	0	0	0	0	0	0	0	0	0
Rhcon	0	0	0	0	0	0	0	0	0	0	0	0
Rhgib	0	0	0	0	0	0	0	0	0	0	0	0
Rhmus	0	0	0	0	0	7	0	0	0	0	0	0
Stanc	0	0	0	0	0	0	0	0	0	0	0	0
Stkri	17	0	0	0	0	0	0	0	0	0	0	0
Stsmi	0	0	0	0	0	0	0	0	0	0	0	0
Stsp1	0	0	0	0	0	0	0	0	0	0	0	0
Sestr	0	61	0	31	95	0	42	8	5	7	0	0
Selba	0	0	0	0	0	0	0	0	0	0	0	0
Selbl	0	0	0	0	0	0	0	0	0	0	0	0
Secap	0	0	0	0	0	0	0	0	0	0	0	0
Selse	0	0	0	0	0	0	0	0	0	0	0	0
Sella	0	0	0	6	0	0	0	17	5	0	0	0
Selpa	0	0	0	0	0	0	0	0	0	0	0	0
Seobe	0	10	0	0	0	0	0	0	3	1	0	0
Selst	0	0	0	0	0	0	0	0	0	0	0	0
Selsu	0	0	0	0	0	0	0	0	0	0	0	0
Sesp1	0	0	0	0	0	0	0	0	0	0	0	0
Sesp2	0	0	0	0	0	0	0	0	0	0	0	0
Suang	0	0	0	0	0	0	0	0	0	0	0	0
Sufon	0	0	0	0	0	0	0	0	0	0	0	0
Sulin	0	0	0	0	0	0	0	0	3	0	0	0
Suspl	0	0	0	0	0	0	0	0	0	0	0	0
Suost	0	0	0	0	7	0	0	0	0	0	0	0
Suten	0	0	0	0	0	0	0	0	0	0	0	0
Suner	0	0	0	0	0	0	0	0	5	0	0	0
Susp1	0	0	0	0	0	0	0	0	0	0	0	0
Susp2	0	0	0	0	0	0	0	0	0	0	0	0
Susp3	0	0	0	0	0	0	0	0	0	0	0	0
Susp4	0	0	0	0	0	0	0	0	0	0	0	0
Ularc	0	0	0	0	0	0	21	8	0	0	0	0
Ullan	0	0	0	68	109	0	0	0	0	0	0	0
Ulram	0	0	0	0	0	0	0	0	0	0	0	0
Ulull	9	41	0	0	0	0	0	0	0	2	0	0

APPENDIX 3

Analysis of variance (ANOVA) of water properties

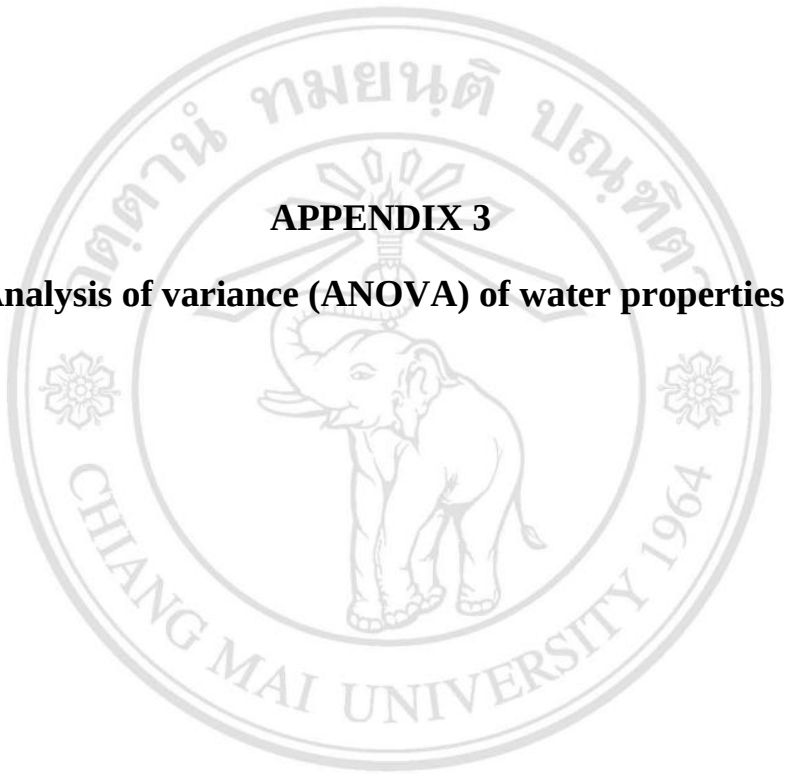


Table 41 The analysis of variance (ANOVA) and post hoc test of water quality in the Wang River during October 2011 to September 2012 determined by month

		Sum of Squares	df	Mean Square	F	Sig.
Wat_temp	Between Groups	1586.452	11	144.223	22.034	.000
	Within Groups	2749.144	420	6.546		
	Total	4335.597	431			
Air_temp	Between Groups	3705.280	11	336.844	32.333	.000
	Within Groups	4375.536	420	10.418		
	Total	8080.815	431			
Conduct	Between Groups	365938.618	11	33267.147	7.795	.000
	Within Groups	1792372.361	420	4267.553		
	Total	2158310.979	431			
DO	Between Groups	50.159	11	4.560	5.125	.000
	Within Groups	373.706	420	.890		
	Total	423.865	431			
BOD	Between Groups	58.699	11	5.336	9.963	.000
	Within Groups	224.945	420	.536		
	Total	283.644	431			
pH	Between Groups	78.900	11	7.173	46.142	.000
	Within Groups	65.289	420	.155		
	Total	144.189	431			
Alk	Between Groups	159988.463	11	14544.406	36.926	.000
	Within Groups	165428.611	420	393.878		
	Total	325417.074	431			
Turb	Between Groups	566553.380	11	51504.853	8.427	.000
	Within Groups	2567121.722	420	6112.195		
	Total	3133675.102	431			
Phos	Between Groups	7.847	11	.713	35.782	.000
	Within Groups	8.374	420	.020		
	Total	16.221	431			
Nitrate	Between Groups	12.977	11	1.180	19.803	.000
	Within Groups	25.021	420	.060		
	Total	37.998	431			
Amonia	Between Groups	2.172	11	.197	4.125	.000
	Within Groups	20.105	420	.048		
	Total	22.276	431			
Velocity	Between Groups	26.055	11	2.369	3.174	.000
	Within Groups	313.452	420	.746		
	Total	339.507	431			

DO

Tukey B

Month	N	Subset for alpha = 0.05		
		1	2	3
8	36	6.7722		
1	36	7.1444	7.1444	
11	36	7.2250	7.2250	
7	36	7.2333	7.2333	
12	36	7.2556	7.2556	
9	36	7.3056	7.3056	
5	36	7.3222	7.3222	
3	36		7.6389	7.6389
2	36		7.7333	7.7333
4	36		7.7389	7.7389
10	36		7.8333	7.8333
6	36			8.0194

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 36.000.

Nitrate

Tukey B

Month	N	Subset for alpha = 0.05					
		1	2	3	4	5	6
11	36	.0222					
9	36	.0806	.0806				
4	36	.0861	.0861				
5	36	.1306	.1306	.1306			
1	36	.1583	.1583	.1583	.1583		
7	36		.2308	.2308	.2308	.2308	
3	36			.2694	.2694	.2694	
2	36				.3139	.3139	
8	36					.3472	
10	36					.3694	
6	36					.3889	
12	36						.6778

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 36.000.

Wat_temp

Tukey B

Month	N	Subset for alpha = 0.05				
		1	2	3	4	5
3	36	25.036				
2	36	25.147				
5	36	25.603				
4	36	26.342	26.342			
1	36	26.683	26.683			
6	36		27.986	27.986		
10	36			28.458	28.458	
12	36			28.667	28.667	
11	36			29.083	29.083	
9	36			29.500	29.500	29.500
8	36				30.019	30.019
7	36					31.042

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 36.000.

Air_temp

Tukey B

Month	N	Subset for alpha = 0.05						
		1	2	3	4	5	6	7
2	36	25.625						
3	36	27.042	27.042					
4	36		28.164	28.164				
12	36		28.275	28.275				
11	36			29.667	29.667			
10	36			29.808	29.808	29.808		
1	36			30.225	30.225	30.225		
9	36				31.208	31.208		
5	36					32.000	32.000	
7	36						33.650	
6	36						34.117	34.117
8	36							35.958

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 36.000.

Conduct

Tukey B

Month	N	Subset for alpha = 0.05			
		1	2	3	4
11	36	220.9722			
12	36	224.0278			
8	36	244.6111	244.6111		
5	36	247.8056	247.8056		
1	36	249.3889	249.3889		
2	36	254.8333	254.8333	254.8333	
9	36	268.3611	268.3611	268.3611	268.3611
10	36		280.3889	280.3889	280.3889
7	36			297.1389	297.1389
6	36			297.9722	297.9722
4	36			302.1111	302.1111
3	36				306.9722

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 36.000.

BOD

Tukey B

Month	N	Subset for alpha = 0.05					
		1	2	3	4	5	6
1	36	.5889					
8	36	.7500	.7500				
4	36	.8639	.8639	.8639			
5	36	.9556	.9556	.9556	.9556		
3	36		1.1528	1.1528	1.1528	1.1528	
6	36		1.2639	1.2639	1.2639	1.2639	1.2639
10	36			1.3056	1.3056	1.3056	1.3056
9	36				1.4278	1.4278	1.4278
2	36					1.4944	1.4944
7	36					1.5472	1.5472
11	36						1.7194
12	36						1.7944

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 36.000.

pH

Tukey B

Month	N	Subset for alpha = 0.05							
		1	2	3	4	5	6	7	8
1	36	6.9564							
2	36		7.3481						
3	36			7.8833					
8	36			7.9825	7.9825				
4	36			8.0381	8.0381	8.0381			
5	36			8.0992	8.0992	8.0992	8.0992		
9	36			8.1464	8.1464	8.1464	8.1464	8.1464	
10	36				8.2064	8.2064	8.2064	8.2064	8.2064
6	36					8.2706	8.2706	8.2706	8.2706
12	36						8.3497	8.3497	8.3497
11	36							8.4208	8.4208
7	36								8.4669

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 36.000.

Alk

Tukey B

Month	N	Subset for alpha = 0.05				
		1	2	3	4	5
1	36	91.7500				
12	36		115.5556			
11	36			131.7222		
2	36			133.1111		
7	36			138.5556	138.5556	
3	36			139.4444	139.4444	
10	36				149.3611	149.3611
4	36					152.9444
5	36					154.2222
9	36					155.5556
8	36					156.6111
6	36					160.6111

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 36.000.

Turb

Tukey B

Month	N	Subset for alpha = 0.05		
		1	2	3
6	36	20.3056		
7	36	24.1944		
9	36	37.7222		
5	36	41.9444	41.9444	
3	36	44.0278	44.0278	
4	36	44.3889	44.3889	
10	36	53.7222	53.7222	
2	36	53.7500	53.7500	
8	36	66.2222	66.2222	
1	36	72.1389	72.1389	
11	36		97.3611	
12	36			159.5000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 36.000.

Phos

Tukey B

Month	N	Subset for alpha = 0.05		
		1	2	3
4	36	.0722		
1	36	.0742		
3	36	.1053		
2	36	.1072		
12	36	.1261		
5	36	.1519		
6	36	.1539		
9	36		.2769	
7	36		.2814	
8	36			.3878
10	36			.3931
11	36			.4772

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 36.000.

Amonia

Tukey B

Month	N	Subset for alpha = 0.05	
		1	2
10	36	.0850	
6	36	.1047	
9	36	.1081	
11	36	.1458	.1458
2	36	.1531	.1531
4	36	.1750	.1750
3	36	.2006	.2006
12	36	.2169	.2169
1	36	.2397	.2397
8	36	.2461	.2461
7	36		.2964
5	36		.3083

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 36.000.

Velocity

Tukey B

Month	N	Subset for alpha = 0.05	
		1	2
3	36	.1447	
2	36	.1450	
4	36	.1450	
7	36	.1678	
11	36	.1936	
12	36	.1939	
5	36	.2147	
10	36	.2183	
9	36	.2228	
8	36	.2711	
6	36	.2842	
1	36		1.0742

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 36.000.

Table 42 The analysis of variance (ANOVA), and post hoc test of water quality in the Wang River during October 2011 to September 2012 determined by site

		Sum of Squares	df	Mean Square	F	Sig.
Wat_temp	Between Groups	2270.676	11	206.425	41.986	.000
	Within Groups	2064.921	420	4.916		
	Total	4335.597	431			
Air_temp	Between Groups	2271.358	11	206.487	14.928	.000
	Within Groups	5809.457	420	13.832		
	Total	8080.815	431			
Conduct	Between Groups	919214.285	11	83564.935	28.325	.000
	Within Groups	1239096.694	420	2950.230		
	Total	2158310.979	431			
DO	Between Groups	152.865	11	13.897	21.538	.000
	Within Groups	271.000	420	.645		
	Total	423.865	431			
BOD	Between Groups	63.236	11	5.749	10.954	.000
	Within Groups	220.409	420	.525		
	Total	283.644	431			
pH	Between Groups	17.846	11	1.622	5.393	.000
	Within Groups	126.343	420	.301		
	Total	144.189	431			
Alk	Between Groups	64042.574	11	5822.052	9.355	.000
	Within Groups	261374.500	420	622.320		
	Total	325417.074	431			
Turb	Between Groups	685025.269	11	62275.024	10.682	.000
	Within Groups	2448649.833	420	5830.119		
	Total	3133675.102	431			
Phos	Between Groups	2.594	11	.236	7.267	.000
	Within Groups	13.628	420	.032		
	Total	16.221	431			
Nitrate	Between Groups	2.507	11	.228	2.698	.002
	Within Groups	35.491	420	.085		
	Total	37.998	431			
Amonia	Between Groups	8.050	11	.732	21.604	.000
	Within Groups	14.227	420	.034		
	Total	22.276	431			
Velocity	Between Groups	38.370	11	3.488	4.865	.000
	Within Groups	301.137	420	.717		
	Total	339.507	431			

Wat_temp

Tukey B

Site	N	Subset for alpha = 0.05			
		1	2	3	4
1	36	20.922			
2	36		26.628		
5	36		26.803		
4	36		27.131	27.131	
7	36			28.481	28.481
6	36			28.547	28.547
12	36				28.758
3	36				29.000
10	36				29.056
11	36				29.203
8	36				29.278
9	36				29.761

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 36.000.

Air_temp

Tukey B

Site	N	Subset for alpha = 0.05		
		1	2	3
1	36	23.375		
12	36		29.425	
2	36		30.350	30.350
6	36		30.542	30.542
3	36		30.700	30.700
4	36		30.892	30.892
9	36		31.172	31.172
5	36		31.533	31.533
7	36		31.583	31.583
8	36		31.633	31.633
11	36		31.658	31.658
10	36			32.875

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 36.000.

Conduct

Tukey B

Site	N	Subset for alpha = 0.05				
		1	2	3	4	5
5	36	195.7778				
6	36	205.4167				
7	36	231.3889	231.3889			
3	36		242.8611	242.8611		
1	36		244.5833	244.5833		
9	36		250.8889	250.8889		
4	36		254.9167	254.9167		
2	36			272.0000	272.0000	
8	36				299.8889	299.8889
12	36					328.3611
11	36					334.0278
10	36					334.4722

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 36.000.

DO

Tukey B

Site	N	Subset for alpha = 0.05					
		1	2	3	4	5	6
9	36	6.7056					
6	36	6.8778	6.8778				
12	36	6.9000	6.9000				
3	36	7.0667	7.0667	7.0667			
8	36	7.0778	7.0778	7.0778			
11	36	7.2306	7.2306	7.2306			
5	36	7.2444	7.2444	7.2444			
2	36		7.4528	7.4528			
10	36			7.5972	7.5972		
4	36				8.0556	8.0556	
1	36					8.3250	8.3250
7	36						8.6889

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 36.000.

BOD

Tukey B

Site	N	Subset for alpha = 0.05		
		1	2	3
1	36	.6361		
3	36	.8556	.8556	
5	36	.9556	.9556	
11	36	.9667	.9667	
6	36	1.1139	1.1139	
4	36	1.1222	1.1222	
12	36		1.2889	
2	36		1.3111	
7	36		1.3444	
10	36		1.3639	
9	36			1.8861
8	36			2.0194

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 36.000.

pH

Tukey B

Site	N	Subset for alpha = 0.05			
		1	2	3	4
2	36	7.7486			
9	36	7.7822			
8	36	7.8175			
5	36	7.8619	7.8619		
12	36	7.9222	7.9222	7.9222	
6	36	7.9669	7.9669	7.9669	
11	36	7.9761	7.9761	7.9761	
10	36	8.0394	8.0394	8.0394	8.0394
4	36	8.0992	8.0992	8.0992	8.0992
7	36		8.2564	8.2564	8.2564
3	36			8.2906	8.2906
1	36				8.4072

Means for groups in homogeneous subsets are displayed. a. Uses Harmonic Mean Sample Size = 36.000.

Alk

Tukey B

Site	N	Subset for alpha = 0.05					
		1	2	3	4	5	6
5	36	120.8333					
9	36	122.3056	122.3056				
6	36	127.8056	127.8056	127.8056			
7	36	135.6111	135.6111	135.6111	135.6111		
10	36	135.7500	135.7500	135.7500	135.7500		
12	36	138.8889	138.8889	138.8889	138.8889	138.8889	
11	36		139.8056	139.8056	139.8056	139.8056	
3	36			143.8333	143.8333	143.8333	
8	36			145.2778	145.2778	145.2778	145.2778
4	36				152.2222	152.2222	152.2222
2	36					154.6389	154.6389
1	36						162.4722

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 36.000.

Turb

Tukey B

Site	N	Subset for alpha = 0.05		
		1	2	3
1	36	14.1944		
6	36	15.9167		
7	36	19.6389		
4	36	19.9722		
3	36	23.7500		
9	36	62.0833	62.0833	
2	36	66.0833	66.0833	
10	36	67.6389	67.6389	
11	36		84.3333	84.3333
5	36		87.8056	87.8056
8	36			123.8333
12	36			130.0278

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 36.000.

Phos

Tukey B

Site	N	Subset for alpha = 0.05			
		1	2	3	4
4	36	.0664			
3	36	.1533	.1533		
1	36	.1578	.1578		
7	36	.1689	.1689	.1689	
12	36	.1747	.1747	.1747	
6	36		.2072	.2072	
8	36		.2200	.2200	
11	36		.2289	.2289	
10	36		.2767	.2767	.2767
5	36			.2933	.2933
2	36			.2944	.2944
9	36				.3656

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 36.000.

Nitrate

Tukey B

Site	N	Subset for alpha = 0.05	
		1	2
5	36	.1278	
2	36	.1778	.1778
6	36	.1972	.1972
8	36	.2000	.2000
7	36	.2000	.2000
4	36	.2167	.2167
3	36	.2694	.2694
10	36	.3111	.3111
9	36	.3167	.3167
12	36	.3389	.3389
11	36	.3444	.3444
1	36		.3753

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 36.000.

Amonia

Tukey B

Site	N	Subset for alpha = 0.05			
		1	2	3	4
1	36	.0389			
4	36	.0636	.0636		
3	36	.0739	.0739		
6	36	.0747	.0747		
7	36	.0753	.0753		
10	36		.1853	.1853	
12	36			.2192	
11	36			.2197	
2	36			.2275	
5	36			.2544	
9	36			.3044	
8	36				.5428

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 36.000.

Velocity

Tukey B

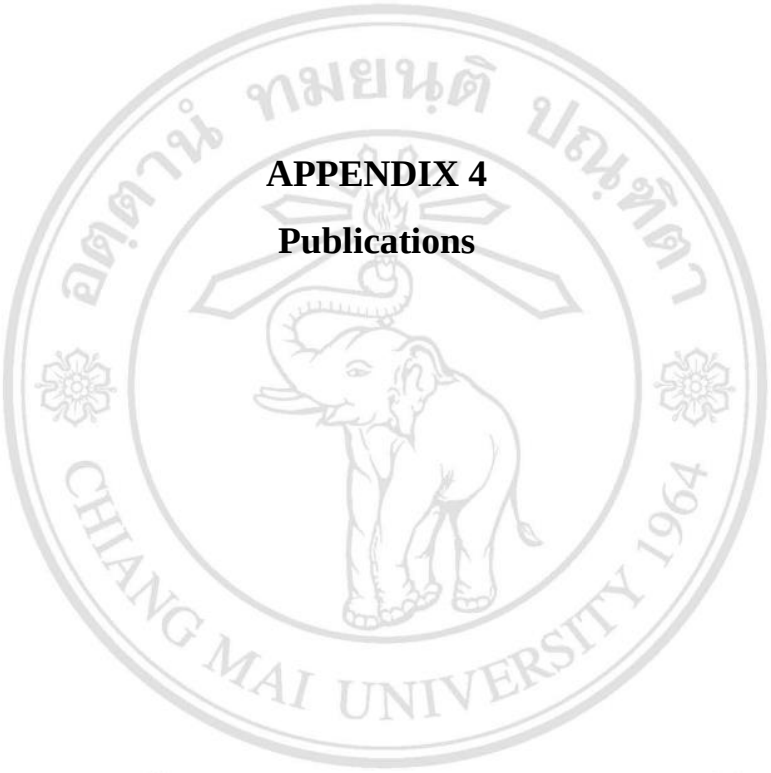
Site	N	Subset for alpha = 0.05	
		1	2
3	36	.0000	
6	36	.0000	
9	36	.0297	
12	36	.0825	
8	36	.2053	
10	36	.2142	
11	36	.2564	
2	36	.2736	
5	36	.3072	
1	36	.3633	
4	36	.3800	
7	36		1.1631

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 36.000.

APPENDIX 4

Publications



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Research Paper

The Trophic Status of the Main Rivers and Reservoirs of the Wang River, Thailand

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Abstract

The trophic status of main rivers and reservoirs of the Wang River, Thailand were investigated every month for a year from October 2011 to September 2012. Water samples were collected from 12 sites located along the main rivers and reservoirs of the Wang River, with sampling sites from upstream to downstream. At each site, some physical and chemical parameters were studied and the water quality was classified based on the trophic status. It was found that the water quality at most of the sampling sites was not clearly different and could be classified as clean to moderate (oligotrophic-mesotrophic status). However, the water quality at the urban sites was different and could be classified as moderate water quality (mesotrophic status). In addition, in this study, it was found that the reservoirs of the Kiew Kor Ma Dam and the Kiew Lom Dam contributed to the improvement of the water quality by decreasing the concentrations of SRP and ammonium -nitrogen that originated from the river.

Keywords: *Water Quality, Trophic Status, AARL-PC Scores, Wang River, Kiew Kor Ma Dam, Kiew Lom Dam*

1. Introduction

At present, water quality is an issue of great significance throughout the world. Surface water resource is extremely essential in terms of the survival of all humans and animals, the existence of aquatic flora and fauna, as well as in areas of navigation, agriculture and many others. A healthy environment is one in which the water quality supports a rich and varied community of organisms and protects public health (Adejuwon & Adelakun, 2012 and Adekoyeni & Salako, 2012). Thailand is a developing country with increasing economic growth. Some industrial and agricultural activities are expanding and these affect the water quality by the waste that is discharged into the water, which may consist of organic, inorganic nitrogen and phosphorus compounds. The sewage disposal, as well as the discharges from industries that are not equipped with proper effluent treatment facilities, have been released into the river and this has a negative influence on the properties of the water. Moreover, fertilizers and pesticides that are used on the surrounding cultivable lands are washed out through surface runoff, which also degrades the water quality of the river (Torranadham & Taweema, 1996).

The classification of water quality is routinely administered in America and Europe. Many of the criteria that are used in the classification process are also useful in indicating water status. There is the classification of water status using the levels of nutrition found in the water, such as in the criteria proposed by Lorraine & Vollenweider (1981) which uses total phosphorus, total nitrogen, secchi depth and chlorophyll to classify the trophic status of the water and separates it into 4 classes. However, Wetzel (2001) used Chemical Oxygen Demand (COD), total phosphorus, total nitrogen and total dissolved solids to classify the trophic status of the water and separate it into 8 classes.

In Thailand, a variety of methods to classify water quality status have been proposed. First was the method modified by Peerapornpisal et al (2004) which had selected parameters as DO, BOD, conductivity and nutrients (nitrate-nitrogen, ammonium-nitrogen and soluble reactive phosphorus)

and separated the division into seven classes. The second set of guidelines used for surface water quality was determined by the Pollution Control Department (PCD, 2010), Ministry of Natural Resources and Environment and some physical and chemical properties were used to assess the water quality and separate it into 5 classes (Notification of National Environment Board, 1994).

The Wang River is the main river of northern Thailand; it is one of the tributaries of the Chao Phraya River, which is the most significant river of Thailand. The Wang River originates at the base of the Phi Pan Nam Range in Chiang Rai Province, flows through most of areas of Lampang Province and combines with the Ping River at Tak Province, with a total length of about 382 kilometres. There are two large reservoirs located along this river, namely the reservoirs of Kiew Lom Dam and Kiew Kor Ma Dam. Nowadays, the Wang River is facing various problems, such as water pollution in urban and agricultural areas, water shortages in the dry season and floods during rainy season. These are a result of increases in population and the expansion of many communities (Hydro and Agro Informatics Institute, 2011).

This study provides the first comprehensive overview of the water quality status using the physical and chemical properties of the water in the Wang River. Moreover a study of the reservoirs affect in terms of nutrient concentrations that are emphasized in water quality for the health of the environment and the aquatic organisms. The results of the determination of the trophic status of the main rivers and reservoirs of the Wang River will be shown in the database of Thailand's water quality and could be used in the water quality management of the Wang River and other rivers of Thailand.

2. Materials and Methods

The study area is the Wang River, which is located in northern Thailand. Data was collected from 12 sampling sites (Figure 1, Table 1) over a period of one calendar year from October 2011 to September 2012, from upstream to downstream every month, both from the main rivers and two large reservoirs, which are located on this river. Some physical and chemical properties of the water were determined at the sampling sites. The temperature, pH, conductivity, total dissolved solid and salinity were measured using the multi-meter (electrode kit of WTW Company). Measurement of some chemical properties of water was done by the method of Eaton et al (2005). Dissolved Oxygen (DO) and BOD were measured using the azide modification method. Alkalinity was measured by phenolphthalein indicator method. Concentrations of nutrients i.e. ammonia-nitrogen, nitrate-nitrogen and Soluble Reactive Phosphorus (SRP) were determined in the laboratory by nesslerization, cadmium reduction and ascorbic acid methods, respectively. The trophic status of the water was classified by the Applied Algal Research Laboratory, Chaing Mai University, Thailand (AARL-PC score) (Table 2) according to Peerapornpisal et al (2004) using selected parameter i.e. conductivity, DO, BOD, SRP, nitrate-nitrogen and ammonium-nitrogen which were based on Lorraine & Vollenweider (1981), Wetzel (2001) and the Pollution Control Department (2010).

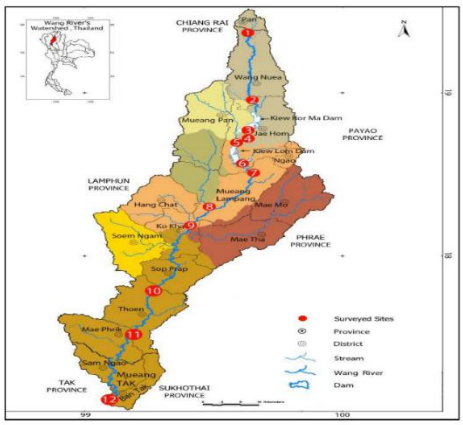

Figure 1. Twelve Studied Sites of Water Quality Monitoring in the Wang River, Thailand between October 2011 and September 2012

The relationship between the water's physical-chemical parameters and sampling sites were analyzed using Principal Component Analysis (PCA) in Multivariate Statistical Package version 3.1 (MVSP). A study of the reservoir affect the water quality in terms of the nutrient levels was carried out by performing ANOVA tests for comparisons of water samples taken from upstream of the reservoirs (Sites 2, 5) and dam reservoirs (Sites 3, 6) and taken from downstream (Sites 4, 7) of the Kiew Kor Ma and Kiew Lom Reservoirs.

3. Results and Discussion

3.1. Water Quality and Trophic Status

Some physical and chemical properties of the water taken from each of the sampling sites are shown as follows and in Table 3.

Site 1: The waterfall area is located in the national park. Water quality of this site was relatively clean with a high DO level. The temperature of the air and water, turbidity, BOD, and ammonium-nitrogen were found to be at low levels, whilst conductivity, alkalinity, nitrate-nitrogen and

Table 1. Twelve Studied Sites of Water Quality Monitoring in Wang River, Thailand between October 2011 and September 2012, and Their Topography

Site	Location	Positions	Altitudes(m)	Land Utilization
1	Wang Kaew Waterfall, Wang Nuea Dist, Lampang Province.	19°18″992′N 99° 39″765′E	573	Recreation area, National park
2	Ban Rong Kor, Wang Nuea District, Lampang Province.	18° 59″438′N 99° 37″256′E	341	Paddy Field, Upstream of Dam
3	Kiew Kor Ma Dam, Chae Hom District, Lampang Province.	18° 38″538′N 99° 37″739′E	357	Reservoir for irrigation
4	Ban Hui Sanao, Chae Hom District, Lampang Province	18° 47″100′N 99° 37″847′E	323	Paddy Field, Downstream of Dam
5	Ban Pan Pong Chai, Chae Hom District, Lampang Province	18° 40″178′N 99° 33″247′E	255	Paddy Field, Upstream of Dam
6	Kiew Lom Dam, Mueang District, Lampang Province	18° 31″431′N 99° 37″490′E	288	Reservoir for irrigation
7	Ban Sop Mai, Mueang District, Lampang Province	18° 30″471′N 99° 38″759′E	241	Rural community, Downstream of Dam, Agricultural area
8	Ban Tha Kao Noi, Mueang District, Lampang Province	18° 17″466′N 99° 28″204′E	218	Metropolitan area
9	Ban Nong Jok, Ko Kha District, Lampang Province	18° 11″394′N 99° 23″817′E	191	Urban area,
10	Ban Mae Thod, Thoen District, Lampang Province	17° 45″111′N 99° 13″807′E	181	Agricultural area, Rural community
11	Ban Mae Chiang Rai, Sam Ngao District, Tak province	17° 22″044′N 99° 13″812′E	121	Agricultural area, Rural community
12	Ban Pak Wang, Ban Tak District, Tak province	17° 07″383′N 99° 03″740′E	111	Mount of river, Agricultural area

Table 2. Water Quality Status of the Wang River Measured from October 2011 to September 2012 Calculated by AARL-PC Score

Sites	AARL-PC Score			Trophic Status		
	Cool Dry	Rainy	Summer	Cool Dry	Rainy	Summer
1	1.8	1.9	1.9	oligo-meso	oligo-meso	oligo-meso
2	2	2.4	2.3	oligo-meso	oligo-meso	oligo-meso
3	1.9	2	2.1	oligo-meso	oligo-meso	oligo-meso
4	1.7	2	2	oligo-meso	oligo-meso	oligo-meso
5	1.9	2.1	2.2	oligo-meso	oligo-meso	oligo-meso
6	1.9	2	2	oligo-meso	oligo-meso	oligo-meso
7	2	1.8	1.9	oligo-meso	oligo-meso	oligo-meso
8	2.3	2.6	2.5	oligo-meso	meso	meso
9	2.3	2.5	2.7	oligo-meso	meso	meso
10	2.2	2.3	2.4	oligo-meso	oligo-meso	oligo-meso
11	2.1	2.3	2.2	oligo-meso	oligo-meso	oligo-meso
12	2.1	2.4	2.1	oligo-meso	oligo-meso	oligo-meso
Over all	2.1	2.3	2.2	oligo-meso	oligo-meso	oligo-meso

SRP were shown to be relatively high (Table 4).

Site 2: This area consisted of rice fields and agricultural areas. The water quality was worse than that of the first site. Levels of BOD, SRP, conductivity and ammonium-nitrogen were relatively high.

Table 3. Mean Values and Standard Deviation of Physical and Chemical Parameter in 12 Sampling Sites of Wang River, Thailand between October 2011 and September 2012

Site	Water Temp. (°C)	Air Temp. (°C)	Conduct ($\mu S.cm^{-1}$)	Alk (mgL^{-1})	Turbid (NTU)	pH	DO (mgL^{-1})	BOD (mgL^{-1})	SRP (mgL^{-1})	NO_3-N (mgL^{-1})	NH_4-N (mgL^{-1})
1	20.9±1.7	23.4±2.8	244.6±23.7	162.5±18.9	14.2±17.5	8.41±0.50	8.3±0.4	0.64±0.38	0.16±0.21	0.38±0.33	0.04±0.03
2	26.6±2.2	30.4±2.7	272.0±41.6	154.6±24.3	66.1±66.2	7.75±0.15	7.3±1.0	1.31±0.61	0.29±0.25	0.18±0.23	0.23±0.14
3	29.0±2.6	30.7±2.7	242.9±19.9	143.8±24.3	23.8±33.2	8.29±0.47	7.1±0.9	0.86±0.70	0.15±0.16	0.27±0.24	0.07±0.04
4	27.1±1.7	30.9±3.1	254.9±17.9	152.2±21.1	20.0±21.8	8.10±0.35	8.1±0.4	1.12±0.56	0.07±0.06	0.22±0.27	0.06±0.03
5	26.8±2.5	31.5±4.1	195.8±42.0	120.8±30.0	87.8±36.2	7.86±0.58	7.2±0.4	0.96±0.59	0.29±0.21	0.13±0.24	0.25±0.14
6	28.5±2.1	30.5±5.1	205.4±29.7	127.8±25.7	15.9±18.8	7.97±0.95	6.9±1.1	1.11±0.86	0.21±0.19	0.20±0.25	0.07±0.05
7	28.5±2.1	31.6±5.0	231.4±38.0	135.6±27.8	19.6±27.1	8.26±0.47	8.7±0.9	1.34±0.68	0.17±0.13	0.20±0.26	0.08±0.06
8	29.3±2.8	31.6±4.5	299.9±95.4	145.3±23.8	123.8±209.2	7.82±0.37	7.1±1.2	2.02±1.05	0.22±0.11	0.20±0.23	0.54±0.52
9	29.8±2.4	31.2±3.2	250.9±65.1	122.3±24.4	62.1±53.8	7.78±0.27	6.7±1.1	1.89±0.96	0.37±0.22	0.32±0.29	0.30±0.11
10	29.1±2.1	32.9±3.1	334.5±103.5	135.8±24.6	67.6±80.0	8.04±0.62	7.6±0.9	1.36±0.71	0.28±0.22	0.31±0.36	0.19±0.13
11	29.2±2.2	31.7±3.2	334.0±40.7	139.8±23.8	84.3±41.5	7.98±0.55	7.2±0.7	0.97±0.54	0.23±0.18	0.34±0.37	0.22±0.20
12	28.8±1.8	29.4±3.9	320.2±70.9	138.9±28.6	130.0±80.5	7.92±0.80	6.9±0.5	1.29±0.78	0.17±0.12	0.34±0.37	0.22±0.14
Ave. Age	27.8±3.2	30.5±4.3	265.5±71.6	140.0±27.5	59.6±85.3	8.01±0.58	7.4±1.0	1.24±0.81	0.22±0.19	0.27±0.31	0.19±0.23

**Temp. = temperature, Conduct =Conductivity, Alk =alkalinity, Turbid=Turbidity, DO =Dissolve Oxygen, BOD = Biochemical Oxygen Demand and SRP = Soluble Reactive Phosphorus*

Table 4. Seasonal Mean of SRP, Nitrate-Nitrogen And Ammonia-Nitrogen Measured In Upstream (Site 2, Site 5), Reservoir of Two Dams (Site 3, Site 6) and Downstream (Site4, Site 7) (N =12), and Percentage of Nutrients Concentrations Decreased from Upstream

Description		Kiew Kor Ma			Kiew Lom		
		Inflow	Reservoirs	Outflow	Inflow	Reservoirs	Outflow
SRP	Dry Cool	0.07	0.03(57.1%)	0.03(57.1%)	0.12	0.04(66.7%)	0.07(41.7%)
	Summer	0.46	0.22(51.8%)	0.08(82.5%)	0.32	0.22(30.3%)	0.15(53.2%)
	Rainy	0.35	0.21(41.1%)	0.09(74.2%)	0.45	0.36(19.9%)	0.29(35.6%)
NO_3-N	Dry Cool	0.14	0.21(-50%)	0.14(0%)	0.07	0.13(-85.7%)	0.12(-71.4%)
	Summer	0.18	0.30(-63.6%)	0.32(-74.5%)	0.16	0.29(-84.2%)	0.27(-68.4%)
	Rainy	0.21	0.28(-36.0%)	0.17(20%)	0.16	0.15(5.3%)	0.18(-10.5%)
NH_4-N	Dry Cool	0.17	0.07(58.8%)	0.07(58.8%)	0.29	0.10(65.5%)	0.11(62.1%)
	Summer	0.29	0.07(75.5%)	0.05(81.8%)	0.31	0.07(77.9%)	0.05(83.6%)
	Rainy	0.22	0.08(61.3%)	0.07(69.0%)	0.17	0.06(64.5%)	0.06(63.0%)

Site 3: This sampling site involved the reservoir of the Kiew Kor Ma Dam. The water showed low levels of alkalinity, conductivity, turbidity and ammonium-nitrogen. The water quality of this site was relatively clean and similar to that of Site 1, but the DO of this site was found to be lower, due to the slowing of the river flow, which is characteristic of this reservoir.

Site 4: This site consisted of the downstream area below the dam, 1 kilometre away from the spillway where water was released. The water quality was relatively clean. Levels of alkalinity, conductivity and DO were shown to have increased, while turbidity and SRP were shown to have decreased, when compared with those of Site 3.

Site 5: This sampling site consisted of the area of rice fields and agricultural areas. The water quality was quite poor with a low DO level. There was a high level of SRP and ammonium-nitrogen, which was similar to those of Site 2.

Site 6: The site was located at the reservoir of the Kiew Lom Dam. The water in the area was standing water, resulting in a low level of DO and turbidity. SRP and ammonium-nitrogen were also at decreased levels compared with

those of Site 5.

Site 7: This site consisted of the downstream area below the dam, 2 kilometres from the spillway, where water is released. The water quality was relatively clean and similar to that of Site 4, levels of DO were high, while turbidity, SRP and ammonium-nitrogen levels were low.

Site 8: This site involved the metropolitan area of Lampang Province. The water revealed a polluted quality with the highest level of BOD. The water also indicated a high amount of ammonium-nitrogen in terms of the water quality standard for living aquatic organisms (PCD, 2010).

Site 9: This site was located at the area in front of a sugar factory. The water showed very poor quality and sometimes became polluted. This area had the lowest DO level compared with all other sites. There were high levels of BOD, SRP and ammonium-nitrogen.

Site 10: This site was located in the village area that was adjacent to the forest. The water flowed through the national park areas where no communities were located. The water sampling showed a better quality than that of Site 9.

Site 11: This site included the rural community and agricultural areas. The water quality was worse than that of the Site 10 with a low DO level and a high level of ammonium-nitrogen.

Site 12: This site involved the confluence area where the Wang River joints the Ping River. This area had a low water flow rate due to the underpinning of the Ping River stream, resulting in a low level of DO.

From the survey, most of the sampling sites showed high levels of conductivity and alkalinity due to the effects of the upstream areas, which were located at the base of limestone mountain ranges. Whilst the concentrations of SRP, nitrate-nitrogen and ammonium-nitrogen of most of the sampling sites were shown to be high and might have been affected by the use of fertilizers during the cultivation period in the rice fields and in the agricultural areas around the Wang River. The results also indicated that the decreased levels of DO and turbidity found in the water and the downstream areas of the two reservoirs were due to a relatively slow flow of water (compared with rivers and streams), which allowed the sedimentation of suspended materials (Garnier et al, 1999 and Harrison et al, 2009). In addition, the sewage and discharge from the metropolitan and industrial zones of the urban areas have resulted in inducing higher concentrations of ammonium-nitrogen.

The trophic status determined from the AARL-PC score of the water at each sampling site. Most of the sampling sites showed the oligotrophic-mesotrophic status in all of the seasons, except for Site 8 and Site 9 which revealed that the trophic status of the water was in the mesotrophic status during the rainy and summer seasons. Figure 2 reveal that at the upstream area (Site 1), the water quality was cleaner than the other sites, followed by the rest of the sampling sites of the reservoir areas (Sites 4, 3, 7, 6 and 5, respectively), while the sampling sites of the agricultural areas were lower in terms of water quality (Sites 2, 10, 11 and 12, respectively) and the sampling sites of the urban area in Site 8 and Site 9 revealed the worst level of quality. These readings were similar to those of Leelahakrjiengkrai & Peerapornpisal (2011), who found that the upstream areas of the Ping and Chi Rivers were cleaner due to the fact that this area was surrounded by deciduous forest, so there was not much contamination of the water body, while the downstream was more contaminated by community and agricultural activities.

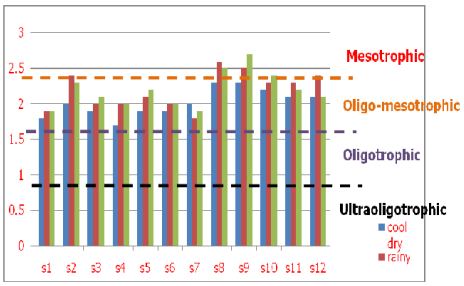

Figure 2. Seasonal Water Quality Status of the Wang River During October 2011 and September 2012 Calculated by AARL-PC Score

3.2. Statistical Analysis

In Asia and Europe, PCA and CA are the primary methods for description of the correlation between sampling sites and the physico-chemical parameters of water bodies (Simeonov et al, 2003; Singh et al, 2004 and Shrestha & Kazama, 2007). The PCA showed positive and negative correlations. As illustrated in Figure 3, BOD showed a positive relationship with conductivity, SRP, water and air temperature, while ammonium-nitrogen indicated a positive correlation with turbidity. In terms of negative correlations, DO, alkalinity, nitrate-nitrogen and pH showed negative correlations with ammonium – nitrogen and turbidity.

By considering the relationship between the sampling sites and water quality, it appeared that the sampling Sites 1, 4, and 7 were correlated to the amount of DO which was indicative of clean water quality. On the contrary, the sampling Sites 8, 9 and 12 were correlated to the amount of BOD and ammonium-nitrogen, which indicated poor water quality.

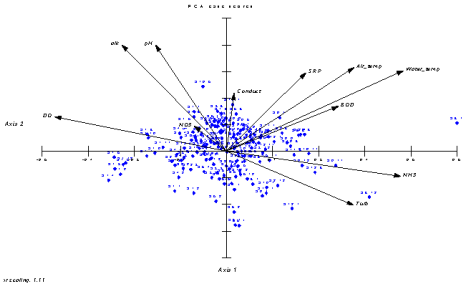

Figure 3. PCA Scatter Plot of the Correlation between the Sampling Sites and the Physico-Chemical Parameters of the Wang River, Thailand between October 2011 and September 2012

3.3. Effect of Reservoir on Nutrient Levels

The quantities of nutrients in the water indicate water resource abundance of algae or aquatic microorganisms. Nutrient enrichment alters the competitive balance between plant species, resulting in the degradation of aquatic plant communities, which provide food, shelter and breeding habitats for a range of animal species. Additionally, elevated nutrient levels can be detrimental to the health of humans and toxic to aquatic animals.

The effect of the reservoirs on nutrient levels in the water reveal that the concentrations of SRP and ammonium-nitrogen at the dam reservoirs and the outflow sites were decreased when compared to the inflow sites (ANOVA $p<0.01$) during all seasons. However, the concentration of nitrate-nitrogen has been no different in decreased.

The results indicated that the reservoirs of Kiew Kor Ma Dam and Kiew Lom Dam revealed improved levels of water quality (Rigacci et al, 2013) in the Wang River by reducing the concentrations of SRP and ammonium-nitrogen at the upstream sites above the reservoir through the occurrence of processes such as de-nitrification and phosphorus diminution (Garnier et al, 1999 and Harrison et al, 2009). Similarly, a marked decrease in levels of phosphates and nitrogen were revealed when water flowed through the reservoirs and this was related to the phytoplankton uptake and benthic de-nitrification (Jossette et al, 1999). Molisani et al (2006) suggests that the nutrients and suspended matter are being trapped in the reservoir by the deposition from the water column to the bottom of the reservoir. While Chung et al (2008) indicated that the flushing discharge from the reservoir decreased the concentrations of soluble nitrogen and phosphorus species, considerably.

4. Conclusion

The water quality of the Wang River in northern Thailand was monitoring from October 2011 to September 2012 and showed mostly clean to moderate water quality and was classified in the oligotrophic-mesotrophic status, except in the urban area sites (Sites 8 and 9) which were of moderate quality and classified in the mesotrophic status. In this investigation, beneficial usages of each river were recommended following the standard for surface water quality of Thailand (Notification of the National Environmental Board, No. 8, 1994). The Wang River could be used for agricultural, industrial and communicative purposes. Finally, the presence of reservoirs along the Wang River can result in an improvement of water quality in the river by decreasing concentrations of SRP and ammonium-nitrogen in the water.

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Diversity of Benthic Diatoms and Relationship with Some Aspect of Water Properties in the Wang River, Thailand

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Abstract

This study involves the diversity of benthic diatoms and their relationship with some aspects of water properties in the Wang River of Thailand. Samples were collected monthly from 10 sampling sites of main river and 2 sampling sites of reservoirs from October 2011 to September 2012. A total of 220 species of benthic diatoms were found and classified into 3 classes, 5 sub-classes, 12 orders, 25 families and 53 genera. In the main river, a total of 213 species of benthic diatoms were found and the most abundant species were *Nitzschia palea*, *Achnanthidium minutissimum* and *Seminavis strigosa.* Whereas, in the reservoir, a total of 119 species of benthic diatoms were found of which the most abundant species were *Achnanthidium minutissimum*, *Achnanthidium exile* and *Discostella stelligeroides.*

The relationship between benthic diatoms and certain aspects of the water properties was analyzed by the Canonical Correspondence Analysis (CCA) and it was found that *Navicula suprinii, Cymbella bifurcumstigma sp.nov., Delicata sparsistriata, Encyonema microcephala* and *Encyonema malaysianum* had a positive correlation with DO, velocity and pH and had a negative correlation with BOD, SRP conductivity, alkalinity, ammonium-nitrogen and turbidity. While *Aulacoseira granulata, Discostella stelligeroides* and *Cocconeis placentula* had a positive correlation with alkalinity and water temperature. Additionally, *Cymbella turgidula, Nitzschia palea, Gomphonema parvulum and Nitzschia gracilis had* a positive correlation with BOD, Ammonium-nitrogen, turbidity and conductivity and had a negative correlation with DO.

Keywords: benthic diatoms, main river, reservoir, water properties

Benthic diatoms sampling

Benthic diatom samples were scraped from 5 stones (or other hard substrates) at each site. In the laboratory, the samples were cleaned by the concentrated acid digestion method and prepared on permanent slides [13], [14], and [15]. The samples were identified and counted according to Lange-Bertalot [16], [17], [18], [19] and [20].

Relationship of diatoms and water properties

The relationship of benthic diatoms and water properties was analyzed using Canonical Correspondence Analysis (CCA) in Multivariate Statistical Package version 3.1 (MVSP).

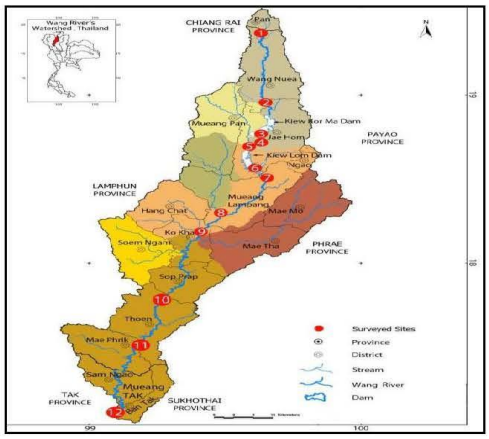

Figure 1 Map of 12 sampling sites of the Wang River, Thailand.

Table 1 12 sampling sites of the Wang River, Thailand and their topography.

Sampling Site	Positions	Altitudes(m)	Land Utilization
S1	19°18″992′N 99° 39 ″765′E	573	Recreation area, National park
S2	18° 59″438′N 99° 37 ″256′E	341	Paddy Field, Upstream of Dam
S3	18° 38″538′N 99° 37 ″739′E	357	Reservoir for irrigation
S4	18° 47″100′N 99° 37 ″847′E	323	Paddy Field, Downstream of Dam
S5	18° 40″178′N 99° 33 ″247′E	255	Paddy Field, Upstream of Dam
S6	18° 31″431′N 99° 37 ″490′E	288	Reservoir for irrigation
S7	18° 30″471′N 99° 38 ″759′E	241	Rural community, Downstream of Dam, Agricultural area
S8	18° 17″466′N 99° 28 ″204′E	218	Metropolitan area
S9	18° 11″394′N 99° 23 ″817′E	191	Urban area,
S10	17° 45″111′N 99° 13 ″807′E	181	Agricultural area, Rural community
S11	17° 22″044′N 99° 13 ″812′E	121	Agricultural area, Rural community
S12	17° 07″383′N 99° 03 ″740′E	111	Mount of river, Agricultural area

Results and Discussions

Diversity of Benthic Diatoms in the Wang River

A total of two hundred and twenty species of benthic diatoms were collected from the Wang River of Thailand. These were found to belong to 3 classes, 5 sub-classes, 12 orders, 25 families and 53 genera (appendix 1). In this study, *Navicula, Nitzschia* and *Gomphonema* were the dominant genera, which was similar to the findings reported in Europe and Asia [21], [22], [23] and [24] which found these genera to be dominant in the Erh-Jen River (China), the Gharasou River (Iran), the Deel River (Republic of Ireland), and the Töss River (Switzerland), respectively. *Navicula* was found to be present with the highest number of species (30 species) followed by *Nitzschia* spp. (29 species), *Gomphonema* spp. (15 species), *Sellaphora* (11 species), *Achnanthidium* (11 species), *Surirella* (11 species) and *Cymbella* (10 species), respectively. The most abundant species in the Wang River were *Nitzschia palea, Achnanthidium minutissimum, Seminavis strigosa, Achnanthidium exile* and *Planotudium frequentissimum.*

In the running water, a total of two hundred and thirteen species of benthic diatoms were discovered from ten sites along the main river. The most abundant species of the running water was *Nitzschia palea*, *Achnanthidium minutissimum, Seminavis strigosa*, *Achnanthidium exile* and *Planotudium frequentissimum*, respectively (Appendix 1 and Figure 2). This was similar to that which was reported in many previous studies conducted in Thailand and Lao PDR [25], [26], [27] and [28]. These studies found the highest numbers of those dominant species in the Mae Sa Stream (Chiang Mai Province), the Kok River (Chiang Rai Province), the Huerng River (Loei Province), the Songkram River (Nakhon Phanom Province), the Moon River (Ubonratchatani Province), the Nam Ngum River (Lao PDR), the Ping River (Northern Thailand) and the Mekong River (passing through Thailand), respectively.

According to Jüttner *et al.* [29], *Nitzschia palea* and *Achnanthidium minutissimum* were found to be the common species in streams in agricultural catchments of the Kathmandu Valley, Nepal. Similarly, Duong *et al.* [30] published a report on the impact of urban pollution from the Hanoi area on diatom communities collected from the Red, Nhue and Tolich Rivers in Vietnam. These investigators reported that the diatom assemblages at the Tolich site consisted mainly of *Nitzschia palea* [30].

In the standing water, a total of one hundred and nineteen species of benthic diatoms were found from 2 sites including Kiew Lom Dam and Kiew Kor Ma Dam. The most abundant species in the standing water of the Wang River were *Achnanthidium minutissimum*, *Achnanthidium exile*, *Kobayasiella* sp.1, *Aulacoseira granulata,* respectively (Appendix 1 and Figure 3). Similar to the studies of the composition of phytoplankton and periphyton communities in the Togyo Reservoir, Korea as reported by Lee and Yoon (2003) [31], it was found that the epipelic diatoms were composed of 30 genera, 87 species, 29 varieties, as well as 2 forms and 7 unidentified species. Among those, the pennate diatoms dominated the centric diatoms in the number of species observed.

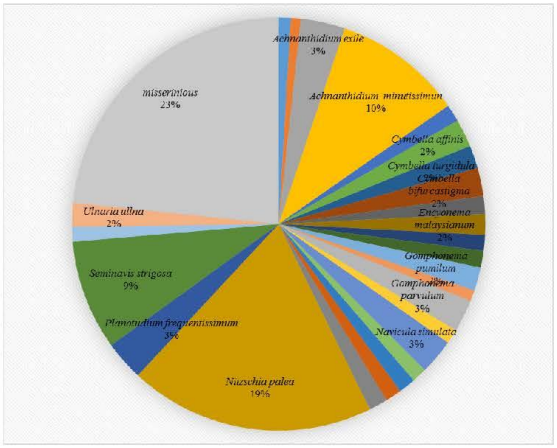

Figure 2 Diatom species proportion in the running water of the Wang River from October 2011 –September 2012

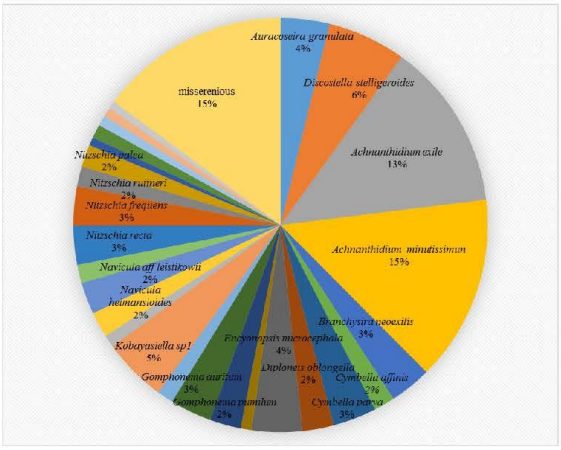

Figure 3 Diatoms species proportion in the standing water of the Wang River from October 2011 –September 2012

Relationship between Benthic Diatoms and Certain Aspect of Water Quality

In Asia and Europe, the Canonical Correspondence Analysis (CCA) was performed to relate diatom community structure to simultaneous effects of environmental variables and to explore the relationship among and between species and these predictor variables [32]. The results of the CCA of some physico-chemical parameters and benthic diatoms which displayed a high relative abundance (>1%), are shown in a CCA plot (Figure 4). The CCA plot graph indicated 3 groups of correlation:

Firstly, the presence of *Navicula suprinii, Cymbella bifurcumstigma sp.nov., Delicata sparsistriata, Encyonema microcephala* and *Encyonema malaysianum* had a positive correlation with DO, velocity and pH and had a negative correlation with BOD, SRP, conductivity, alkalinity, ammonium-nitrogen and turbidity; thus, the species were found to be in high abundance when the water conditions displayed a high DO level and low levels of conductivity, alkalinity, ammonium-nitrogen, turbidity and BOD, and could be used to monitor clean water quality. It appeared that the species associated with clean water quality could be used to indicate the oligotrophic species. Diatom species of this group are usually found in the upper part and in the upstream area of the waterway in this study, which had clean water quality and was similar to that which was reported by Chen and Wu [33], Lobo *et al.* [34], Wang *et al.* [35] and Leelahakriengkrai [36]

Secondly, the presence of *Aulacoseira granulata, Discostella stelligeroides* and *Cocconeis placentula* had a positive correlation with water and air temperatures and alkalinity. The species were found to be in high abundance when water conditions displayed high temperatures and alkalinity and therefore, could be used to indicate moderate water quality. These findings were similar to those which were reported by Chen and Wu [33], Lobo *et al.* [34] and Wang *et al.* [35].

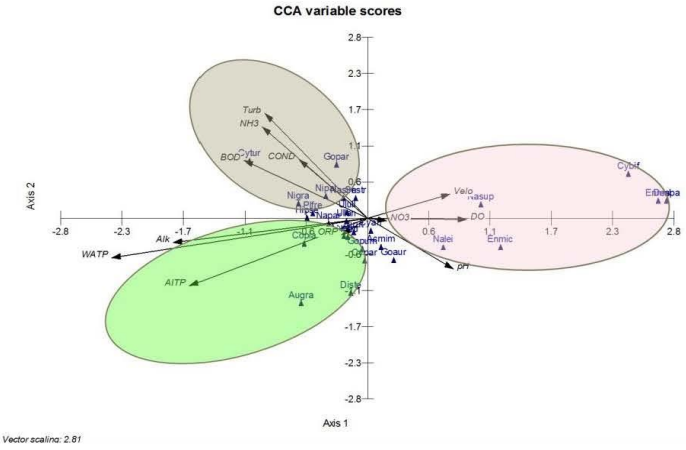

Figure 4 CCA plot graph presenting the relationship between benthic diatoms and some aspect water properties of the Wang River from October 2011 –September 2012

****Abbreviations (Velo = velocity, DO = dissolve oxygen, NO_3 = nitrate nitrogen, Turb = turbidity, NH_3 = ammonium nitrogen, COND = conductivity, BOD = biochemical oxygen demand, Alk = alkalinity, SRP = soluble reactive phosphorus, AITP = air temperature, WATP = water temperature)**

(Cybif = *Cymbella bifurcumstigma sp.nov.*, **Despa =** *Delicata sparsistriata,* **Enmal=** *Encyonema malaysianum*, **Nasup =** *Navicula suprinii,* **Enmic =** *Encyonema microcephala*, **Nalei=***Navicula leistikowii*, **Copla =** *Cocconeis placentula,* **Augra =** *Aulacoseira granulata,* **Diste =** *Discostella stelligeroides* **Gopar=** *Gomphonema parvulum*, **Cytur=** *Cymbella turgidula*, **Nipal =** *Nitzschia palea*, **Nigra =** *Nitzschia gracilis*)

Thirdly, The presence of *Cymbella turgidula, Nitzschia palea, Gomphonema parvulum* and *Nitzschia gracilis* had a positive correlation with BOD, ammonium-nitrogen, turbidity and conductivity and had a negative correlation with DO; thus, the species were found to be in high abundance when water conditions included high BOD levels, ammonium-nitrogen, conductivity, turbidity and a low DO level, and could be used to indicate polluted water quality. Normally, diatoms of this group were found to be the dominant species in urban area sites and were related with moderate to polluted water quality. This was similar to findings reported by Palmer [37], Güttinger and Straub [38], Jüttner *et al.* [29], Stenger-Kovács *et al.* [39], Duong *et al.* [30], as well as García *et al.* [40]. They had all reported finding that species in moderate to polluted water quality, which indicated its tolerance to organic pollution.

Conclusions

A study of the diversity of benthic diatoms and their relationship with certain aspects of the water properties in the Wang River in Thailand was carried out from October 2011 – September 2012. Physical, chemical water quality and diatom samples were investigated every month for a year from 12 sampling sites in the Wang River involving upstream areas and downstream areas of both the mainstream waterways and the reservoirs of the river. A total of two hundred and twenty species of benthic diatoms were found from the Wang River, two hundred thirteen species were collected from the main river and one hundred nineteen species were collected from the reservoirs. These were classified into 3 classes, 5 sub-classes, 12 orders, 25 families and 53 genera.

Navicula suprinii, Cymbella bifurcumstigma, Delicata sparsistriata, Encyonema microcephala and *Encyonema malaysianum* had a positive correlation with DO, Velocity and pH and could be used to monitor clean water quality. While *Aulacoseira granulata, Discostella stelligeroides* and *Cocconeis placentula had* a positive correlation with alkalinity and temperatures and could be used to indicate moderate water quality. Additionally, *Cymbella turgidula, Nitzschia palea, Gomphonema parvulum* and *Nitzschia gracilis* had a positive correlation with BOD, Ammonium-nitrogen, turbidity and conductivity and could be used to indicate polluted water quality.

Acknowledgments

The authors would like to thank the Agricultural Research Development Agency of Thailand (ARDA), and the Graduate School of Chiang Mai University for providing financial support.

Appendix 1 Species list and relative abundance of each taxon of benthic diatoms in the Wang River, Thailand. d = dominant (>20%), f = frequent (5-20%), c = common (1-5%), r = rare (<1%) (Kelly and Whitton, 1995)

TAXA	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
Class Coscinodiscineae												
Subclass												
Thalassiosirophycidae												
Order Thalassiosirales												
Family Stephanodiscaceae												
Cyclotella meneghiniana	-	-	r	-	-	r	r	r	r	r	r	r
Cyclotella shanxiensis	-	-	r	r	-	r	r	r	-	-	-	-
Discostella stelligeroides	-	-	c	c	r	f	c	r	r	-	r	r
Order Aulacoseirales												
Family Aulacoseiraceae												
Aulacoseira granulata	-	-	r	r	r	f	f	c	c	-	r	r
Class Fragilariophyceae												
Subclass Fragilariophycidae												
Order Fragilariales												
Family Fragilariaceae												
Fragilaria capucina	-	-	-	r	-	-	r	-	-	-	-	-
Fragilaria vaucheriae	-	-	r	-	-	-	r	-	-	-	-	-
Fragilaria rumpens	-	-	r	r	r	r	-	-	-	-	-	-
Staurosira spp.1	-	-	-	-	-	-	-	r	r	-	r	-
Ulnaria arcus	-	-	r	r	r	r	r	r	r	r	r	r
Ulnaria lanceolata	r	-	r	c	c	r	c	-	-	-	c	c
Ulnaria ramesii	-	r	-	-	-	-	-	r	-	-	-	-
Ulnaria ullna	c	c	r	r	r	r	c	r	c	c	c	-
Class Bacillariophyceae												
Subclass Eunotiophycidae												
Order Eunotiales												
Family Eunotiaceae												
Eunotia minor	-	r	-	-	-	r	-	r	r	r	-	-
Eunotia curvata	-	-	-	-	-	-	-	-	r	-	-	-
Eunotia bilunaris	-	-	r	r	-	-	-	-	-	-	-	-
Subclass Bacillariophycidae												
Order Cymbellales												
Family Cymbellaceae												
Cymbella affinis	-	c	c	c	f	r	f	-	-	-	f	c
Cymbella bifurcumstigma	f	-	r	-	-	-	-	-	-	-	-	-
Cymbella parva	-	-	c	f	r	c	r	-	-	-	-	-
Cymbella cf. subleptoceros	r	-	-	-	-	-	-	-	r	r	-	-
Cymbella sumatraensis	r	r	-	-	-	-	-	-	-	-	-	-
Cymbella tumida	r	r	r	-	r	r	r	-	r	r	-	r
Cymbella turgidula	r	r	-	r	-	-	-	f	c	c	r	-
Cymbella cf. geddiana	r	-	r	-	-	-	-	-	r	-	-	-
Cymbella sp.1	-	-	r	r	r	-	r	-	r	-	-	-
Cymbella sp.2	-	-	r	-	-	-	r	-	r	-	-	-
Delicata delicatula	-	-	-	r	-	-	-	-	-	-	-	-
Delicata cf. *sparsistriata*	f	-	-	-	-	r	-	-	-	-	-	-
Encyonema gaeumannii	-	-	-	c	-	r	-	-	-	-	-	-
Encyonema hustedtii	-	-	-	r	-	r	r	r	-	-	-	-
Encyonema malaysianum	f	-	-	-	-	-	-	-	r	-	-	-
Encyonema minuta	-	-	-	-	r	-	r	-	-	-	-	-

Appendix 1 (continued)

TAXA	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
Encyonema mesianum	-	r	r	-	-	r	r	r	r	-	-	r
Encyonema prostratum	r	-	-	-	-	-	-	-	-	-	-	-
Encyonema sp.1	-	-	-	-	-	-	-	-	r	-	-	-
Encyonopsis leei	f	-	r	-	r	-	-	-	-	-	-	-
Encyonopsis microcephala	f	r	f	c	r	-	-	-	-	-	-	-
Placoneis exigua var. *capitata*	-	-	-	-	r	-	-	-	r	-	-	r
Placoneis witkowskii	-	-	-	-	-	-	-	r	-	-	r	-
Placoneis cf. *elegans*	-	-	r	-	-	-	-	-	-	-	-	-
Family Gomphonemataceae												
Gomphonema affine	-	-	r	r	-	-	r	r	r	-	-	-
Gomphonema turris	-	-	-	-	-	-	-	r	-	-	-	r
Gomphonema pseudoaugur	-	-	-	-	r	-	-	-	c	r	-	-
Gomphonema gracile	r	-	r	c	r	r	-	-	r	r	-	-
Gomphonema pumilum	r	c	c	f	-	c	-	c	-	-	-	-
Gomphonema auritum	c	-	f	f	r	f	f	-	-	r	-	r
Gomphonema productum	-	r	-	-	-	-	-	-	-	-	-	-
Gomphonema lanceolatum	-	-	-	-	r	r	r	r	c	r	-	-
Gomphonema parvulum var lagenulum	-	c	-	r	r	r	c	r	-	-	-	r
Gomphonema bohemicum	-	-	r	-	-	-	-	-	-	-	-	-
Gomphonema javanicum	-	-	-	r	r	c	r	-	-	-	-	-
Gomphonema micropus	-	-	-	-	r	r	-	-	c	-	r	r
Gomphonema pala	r	-	-	-	-	-	-	-	-	-	-	-
Gomphonema minutum	-	-	-	-	-	-	r	r	-	-	-	-
Gomphonema parvulum	-	c	-	r	f	r	f	f	r	c	c	c
Reimeria uniseriata	-	-	-	-	-	-	r	-	-	-	-	-
Family Cocconeidaceae												
Cocconeis placentula	r	r	r	r	r	-	f	c	c	c	r	r
Order Achnanthales												
Family Achnanthaceae												
Achnanthes inflata	-	-	-	-	-	-	r	-	-	-	-	-
Achnanthes oblongella	-	r	-	-	r	-	-	-	r	-	-	r
Achnanthes pusilla	r	-	-	-	-	-	-	-	-	-	-	-
Achnanthes sp.1	r	-	-	-	r	-	-	-	-	-	-	-
Achnanthidium exile	r	-	d	d	r	-	c	r	c	-	r	-
Achnanthidium exiguum	-	c	r	-	-	r	r	-	-	r	r	r
Achnanthidium jackii	r	-	-	-	-	-	-	-	-	-	-	-
Achnanthidium latecephalum	r	-	r	r	c	r	r	-	-	-	-	-
Achnanthidium minutissimun	c	d	c	c	d	d	f	-	c	f	c	c
Achnanthidium straubianum	r	-	r	-	-	-	-	-	-	-	-	-
Achnanthidium cf. subhudsonis	-	-	-	r	-	r	-	-	-	-	-	-
Achnanthidium sp.1	r	-	-	-	-	-	-	-	-	-	-	-
Achnanthidium sp.2	-	-	-	-	-	r	-	-	-	-	-	-
Planotidium frequentissimum	-	c	r	r	c	r	c	f	c	c	f	c
Planotidium rostratum	-	r	-	-	r	-	-	r	r	r	r	-
Planotidium sp.1	-	-	-	-	-	-	-	r	-	-	-	-
Order Naviculales												
Family Diadesmidaceae												
Diadesmis confervacea	-	-	-	-	-	-	-	-	r	r	r	-

Appendix 1 (continued)

TAXA	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
Luticola mitigata	-	r	r	-	r	-	-	-	r	-	-	-
Luticola mutica var. *lanceolata*	-	-	-	-	-	-	-	-	r	-	-	r
Luticola saxophila	r	-	-	-	-	r	r	-	r	-	-	-
Luticola simplex	r	-	r	r	-	r	r	-	-	-	-	r
Luticola terminata (tropica)	-	-	-	-	r	-	-	-	-	-	-	-
Luticola cf. *pseudokotschyi*	-	-	-	-	-	-	-	-	r	-	r	c
Luticola sp.1	-	-	-	-	-	r	-	r	r	r	r	c
Family Brachysiraceae												
Branchysira neoexilis	-	r	f	c	r	-	r	-	r	r	-	r
Branchysira cf. *microclava*	-	r	r	-	-	r	r	-	-	-	-	-
Family Neidiaceae												
Neidium affine	-	-	r	-	-	-	-	-	-	-	-	-
Neidium affine var. *longiceps.*	r	-	-	-	r	r	-	-	-	-	-	-
Neidium binodeforme	r	-	-	r	-	-	r	-	-	-	-	-
Neidium dubium	-	r	-	-	-	-	-	-	-	-	-	-
Neidium gracile	-	-	-	-	-	-	-	-	r	-	-	-
Family Sellaphoraceae												
Fallacia pygmaea	-	-	-	-	-	-	-	-	r	-	-	-
Sellaphora bacillum	r	-	r	r	r	-	-	-	-	-	-	-
Sellaphora blackfordensis	r	r	r	-	r	r	r	-	-	-	-	-
Sellaphora capitata	-	-	-	-	r	-	-	-	-	-	-	r
Sellaphora lanceolata	r	r	r	r	r	-	r	r	c	r	r	-
Sellaphora obesa	-	r	-	-	-	-	-	-	r	r	-	r
Sellaphora papula	-	-	-	-	-	-	r	-	-	-	-	-
Sellaphora seminulum	-	-	-	-	-	r	-	-	-	-	-	-
Sellaphora stroemii	r	-	-	-	-	-	-	-	-	-	-	-
Sellaphora subbacillum	-	-	c	r	r	r	-	-	-	-	-	-
Sellaphora sp.1	-	-	-	-	-	-	r	-	-	-	-	-
Sellaphora sp.2	-	r	r	-	-	-	-	-	-	-	-	-
Family Pinnulariaceae												
Pinnularia substomatophora	r	-	-	-	-	r	-	-	-	-	-	-
Pinnularia oominensis	-	r	-	-	-	-	-	-	-	-	-	-
Pinnularia biceps	-	-	-	-	-	-	-	-	r	-	-	-
Pinnularia acidojaponica	-	-	-	-	-	r	r	-	r	-	r	c
Pinnularia cf. *interrupta*	-	r	r	r	-	-	-	r	r	r	-	-
Family Diploneidaceae												
Diploneis oblongella	c	r	c	r	r	r	r	r	r	r	-	-
Diploneis oculata	r	-	-	-	-	-	-	-	-	-	-	r
Diploneis smithii	r	-	-	-	-	-	-	r	-	-	-	-
Family Naviculaceae												
Adlafia bryophila	r	-	r	r	-	-	-	-	-	-	-	-
Caloneis bacillum	r	r	-	r	r	-	r	-	-	-	-	-
Caloneis silicula var. alpina	-	-	r	-	-	r	r	-	r	-	-	-
Caloneis silicula var. peisonis	-	-	-	r	-	-	-	-	-	-	-	-
Caloneis ventricosa	-	-	-	-	-	r	-	r	-	r	-	-
Caloneis cf. *tenuis*	-	r	-	-	-	-	-	-	-	-	-	-
Caloneis sp.1	-	-	-	-	-	r	-	-	-	r	-	-
Caloneis sp.2	r	c	-	-	r	-	-	-	-	-	-	-

Appendix 1 (continued)

TAXA	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
Eolimna minima	-	-	-	-	-	r	-	-	r	-	-	c
Geissleria decussis	r	r	-	r	-	r	r	r	r	-	r	r
Geissleria punctiferera	-	r	-	-	-	-	r	r	r	r	r	r
Geissleria cf. cummerowi	r	r	-	-	-	-	-	-	-	-	-	-
Hippodonta avittata	-	-	-	-	-	-	-	r	r	r	r	-
Hippodonta pseudacceptata	-	c	-	-	-	-	-	r	c	c	c	c
Kobayasiella sp.1	-	-	r	r	-	f	r	-	-	-	-	r
Myamaea agrestis	-	-	-	-	r	r	-	-	-	-	-	-
Navicula amphiceropsis	-	-	r	-	c	r	-	c	r	r	-	-
Navicula antonii	-	-	-	-	-	-	r	-	c	r	r	-
Navicula capitatoradiata	c	-	-	-	-	-	r	-	-	-	-	-
Navicula cataracta-rheni	r	-	-	r	-	-	r	-	-	-	-	-
Navicula caterva	-	r	-	-	r	-	-	-	-	-	-	-
Navicula cinctaeformis	-	-	-	-	-	-	-	-	-	-	-	r
Navicula cryptotenella	-	c	-	r	-	-	-	-	-	-	-	r
Navicula erifuga	-	-	-	-	r	-	r	-	-	-	-	-
Navicula escambia	-	c	-	-	-	-	r	-	r	-	-	-
Navicula germainii	-	r	-	r	r	-	r	-	c	c	c	c
Navicula heimansioides	c	-	c	r	-	-	r	-	-	-	-	r
Navicula hintzii	c	-	-	-	-	-	r	-	-	-	-	r
Navicula jacobii	-	-	-	-	-	-	r	-	r	-	-	-
Navicula pseudostauropteroides	r	-	r	-	r	-	-	-	-	-	-	-
Navicula radiosafallax	-	-	c	c	-	-	r	r	-	-	-	r
Navicula reichardtiana	-	r	-	-	-	-	-	-	-	-	-	-
Navicula rostellata	-	c	c	r	r	r	r	r	-	c	c	c
Navicula simulata	-	-	-	c	f	r	c	c	c	c	c	f
Navicula suprinii	f	-	-	-	c	r	c	-	-	-	-	r
Navicula vandamii	r	r	-	r	c	r	r	-	-	-	-	r
Navicula vandamii var mertensiae	-	-	-	-	r	-	r	-	-	c	r	-
Navicula viridula	-	-	r	r	-	-	r	-	-	-	-	-
Navicula viridulacalcis	r	-	-	-	-	-	-	-	-	-	-	-
Navicula cf. *aquaedurae*	-	f	-	r	-	-	r	-	-	-	-	-
Navicula cf. *bella*	-	-	r	-	-	-	-	-	-	-	-	-
Navicula cf. *leistikowii*	f	-	-	r	r	c	c	-	-	r	r	-
Navicula cf. *parablis*	-	c	c	c	-	-	r	c	c	r	r	-
Navicula cf. *vekhovii*	r	-	-	-	-	-	-	-	-	-	-	-
Navicula sp.1	r	-	-	-	-	-	-	-	-	-	-	-
Navicula sp.2	-	r	-	-	-	-	-	-	-	-	-	-
Naviculadicta nanogomphonema	-	-	-	-	r	-	-	-	r	-	-	-
Seminavis strigosa	-	f	r	c	f	c	f	c	c	f	d	f
Family Plagiotropidaceae												
Plagiotropis lepidoptera var. *proboscidea*	-	-	-	-	r	-	-	-	r	r	-	-
Family Pleurosigmataceae												
Gyrosigma obscurum	-	-	-	-	-	-	-	-	r	-	-	-
Gyrosigma scalproides	r	r	-	r	r	r	r	r	-	r	r	r
Gyrosigma spencerii	r	c	r	r	r	r	r	r	r	r	r	c
Pleurosigma negoroi	r	r	-	-	-	-	-	-	r	r	c	r

Appendix 1 (continued)

TAXA	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
Family Stauroneidaceae												
Craticula riparia var. *mollenhaueri*	-	-	-	-	-	-	-	-	r	-	-	-
Craticula molestiformis	r	-	-	-	r	-	-	-	-	-	-	-
Craticula vixnegligenda	-	-	r	-	-	-	-	-	-	-	-	r
Craticula ambigua	-	-	r	-	-	-	-	-	-	-	-	-
Stauroneis ancep	-	-	-	-	r	-	-	-	-	-	r	-
Stauroneis kriegeri	r	-	-	r	-	-	-	-	-	-	-	-
Stauroneis smithii	r	-	-	-	-	-	-	-	-	-	-	-
Family Amphipleuraceae												
Frustulia vulgaris	r	-	-	-	-	-	-	-	-	-	-	-
Halamphora bullatoides	r	r	-	-	-	-	-	-	-	-	-	-
Halamphora montana	-	r	-	r	r	c	c	r	r	-	r	r
Halamphora veneta	-	-	-	-	-	-	-	-	-	-	-	r
Order Thalassiophysales												
Family Catenulaceae												
Amphora liriope	-	c	r	r	r	-	r	r	c	r	r	r
Order Mastogloiales												
Family Mastogloiaceae												
Aneumastus sp.1	-	-	-	-	-	-	-	-	-	-	r	-
Order Bacillariales												
Family Bacillariaceae												
Bacillaria paxillifera	r	r	r	r	r	-	r	r	r	r	r	r
Hantzschia amphioxys	-	-	c	-	r	r	-	r	r	-	-	r
Nitzschia amphibia	-	-	r	-	-	-	-	-	-	r	-	-
Nitzschia angustata	-	-	-	r	-	-	-	-	-	-	r	-
Nitzschia clausii	-	r	-	r	r	r	r	r	r	r	r	c
Nitzschia commutata	-	r	-	-	-	-	-	-	-	-	-	-
Nitzschia compressa var. *balatonis*	-	-	-	-	-	-	-	-	-	-	r	-
Nitzschia desertorum	-	-	-	-	-	r	-	r	-	-	-	-
Nitzschia dissipata	-	c	r	r	r	-	r	r	r	r	r	c
Nitzschia filiformis var conferta	-	-	-	-	-	r	-	-	-	-	-	r
Nitzschia frequens	-	r	r	-	-	f	-	r	-	-	-	-
Nitzschia sp.1	r	-	r	r	-	-	-	-	-	-	-	-
Nitzschia frustulum	-	r	r	-	-	c	r	-	r	c	c	c
Nitzschia gracilis	-	c	-	-	r	r	r	r	r	f	c	c
Nitzschia hantzschiana	-	-	-	-	-	r	r	-	-	-	-	-
Nitzschia hoehnkii	-	r	-	-	-	-	-	r	-	-	r	c
Nitzschia intermedia	-	c	r	r	-	-	r	r	-	-	r	-
Nitzschia lanceolata var. *minutula*	-	-	r	-	r	-	-	r	r	-	-	r
Nitzschia lorenziana	-	r	-	r	r	r	-	-	r	r	r	r
Nitzschia palea	-	f	c	c	f	c	f	d	d	d	d	f
Nitzschia palea var. *deblis*	r	r	-	-	-	-	-	-	-	c	-	-
Nitzschia parvula	-	-	-	r	-	-	-	r	r	-	r	-
Nitzschia persuadens	-	-	-	-	-	-	r	r	r	r	c	c
Nitzschia pumila	-	-	r	-	-	r	-	r	r	-	r	-
Nitzschia recta	r	-	c	c	c	c	c	-	-	-	c	f
Nitzschia reversa	-	r	r	-	r	-	-	r	r	r	r	r
Nitzschia salinicola	-	-	r	-	-	-	-	-	r	r	-	r

Appendix 1 (continued)

TAXA	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
Nitzschia sinuta var. *tabellaria*	r	-	r	r	-	-	-	-	-	-	-	-
Nitzschia scalpelliformis	-	-	r	-	-	-	-	-	-	-	r	c
Nitzschia solgensis	r	-	-	-	-	-	-	-	-	-	-	-
Nitzschia cf. *ruttneri*	-	c	-	-	r	c	f	r	-	c	c	c
Tryblionella cf. *salinarum*	-	r	r	r	-	r	-	-	-	r	r	r
Order Rhopalodiales												
Family Rhopalodiaceae												
Epithemia cistula	-	-	r	-	-	-	-	-	-	-	-	-
Rhopalodia gibba	-	-	r	r	-	-	-	-	-	-	-	-
Rhopalodia contorta	-	-	-	-	-	-	-	-	-	-	-	r
Rhopalodia musculus	-	r	r	r	r	r	-	-	-	-	r	r
Order Surirellales												
Family Surirellaceae												
Surirella ostentata	r	r	-	-	r	r	r	r	r	-	r	r
Surirella angusta	-	r	-	-	-	-	-	-	-	-	-	r
Surirella fonticola	-	r	-	-	-	-	-	r	-	r	r	-
Surirella linearis	-	r	-	-	r	-	-	r	r	r	-	r
Surirella splendida	-	r	-	r	-	-	-	-	-	-	-	-
Surirella tenera	-	r	-	-	-	-	-	r	r	-	-	-
Surirella tenera var. *nervosa*	-	-	-	-	-	-	-	r	r	r	-	-
Surirella sp.1	r	-	-	-	-	-	-	-	-	-	-	-
Surirella sp.2	-	-	-	-	-	-	-	-	r	-	-	-
Surirella sp.3	r	-	-	-	-	-	-	-	-	-	-	-
Surirella sp.4	-	r	-	-	-	-	-	-	-	-	-	-

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